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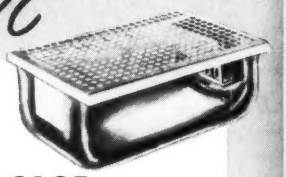

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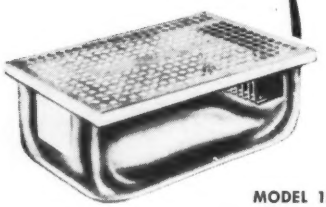

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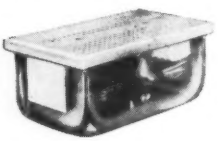

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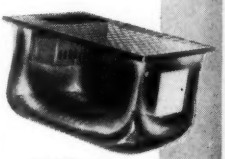

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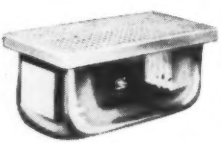

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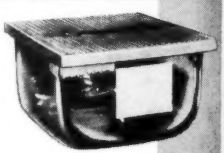

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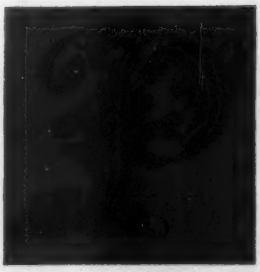

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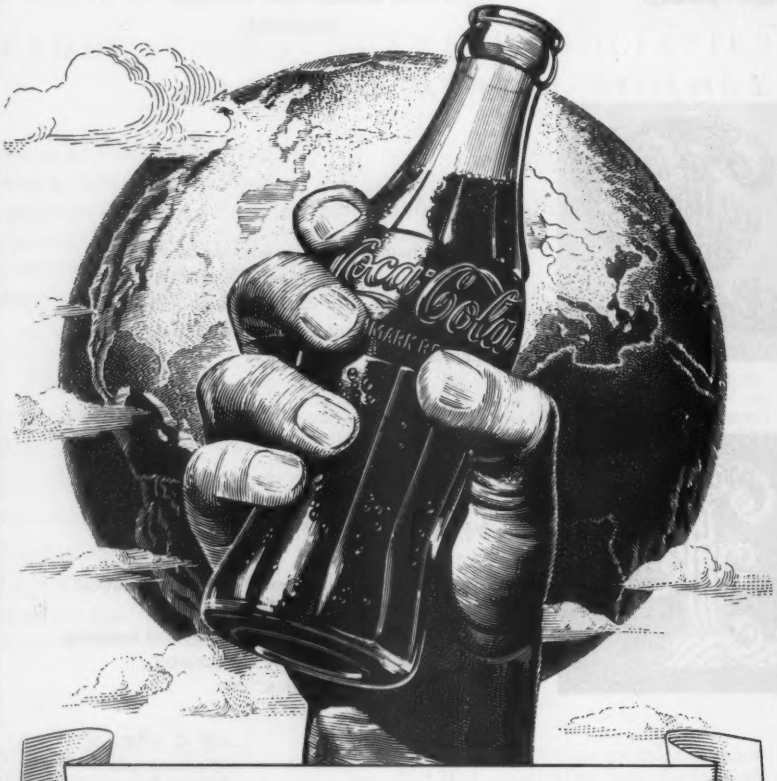

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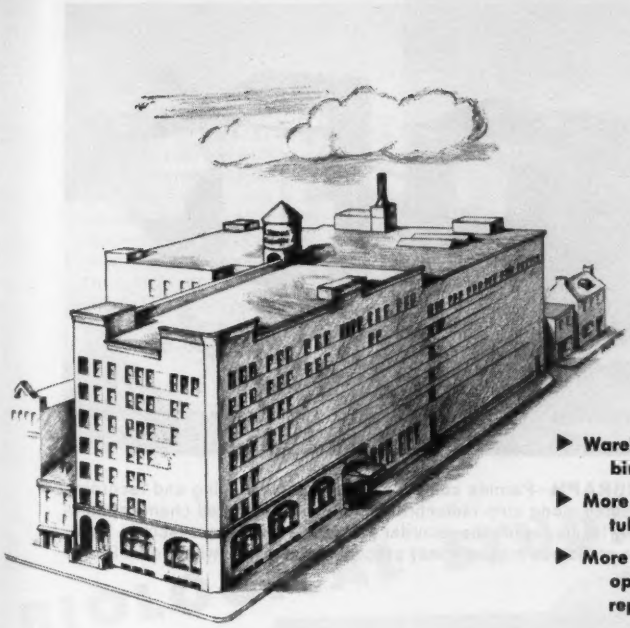

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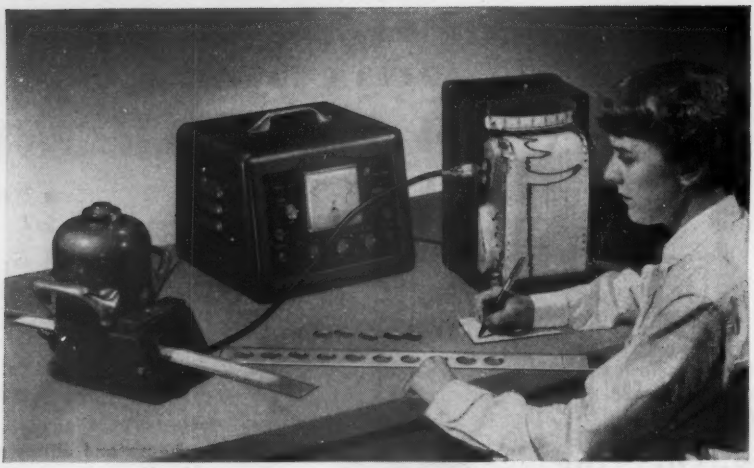

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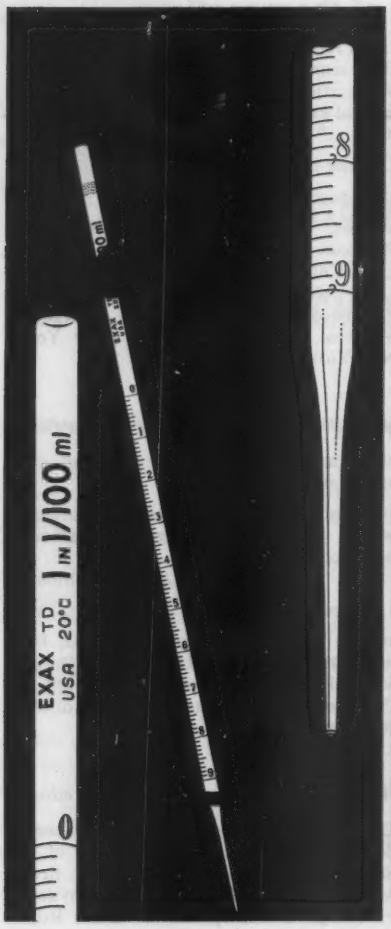

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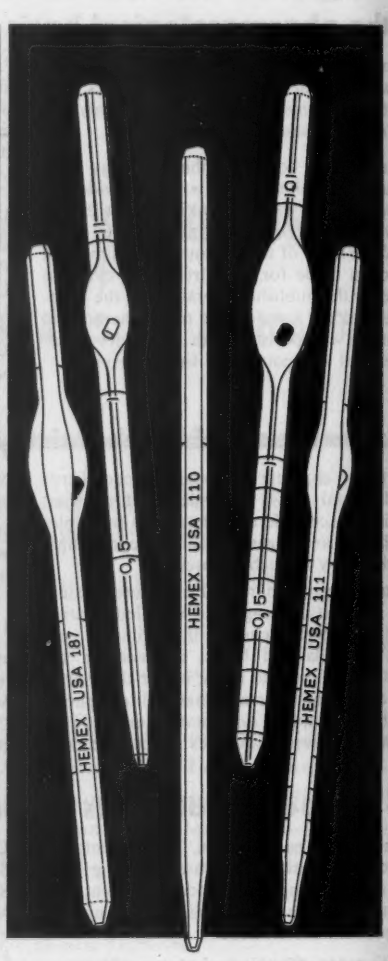

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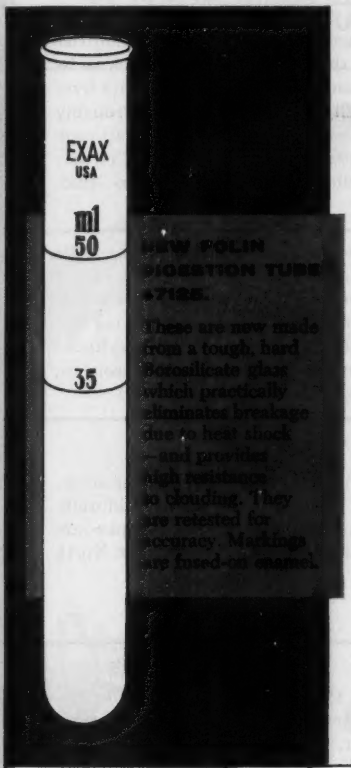

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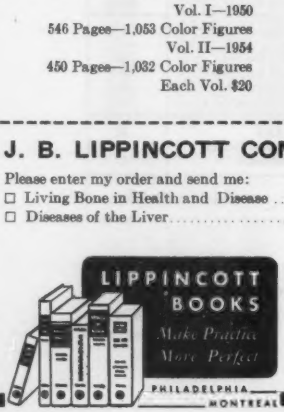

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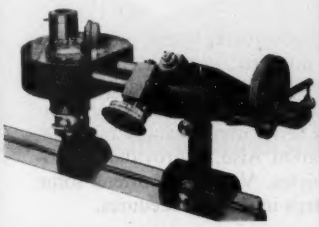

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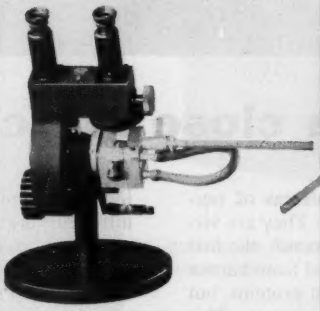

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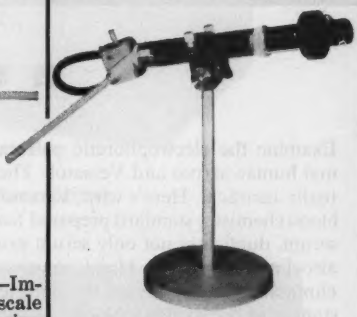

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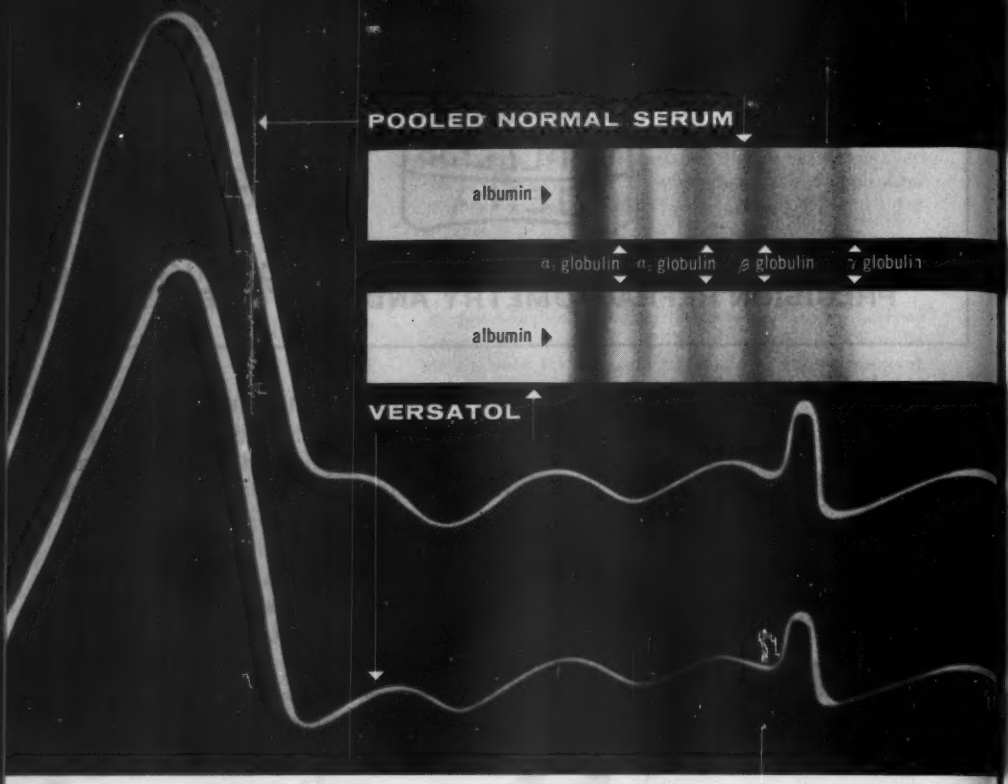

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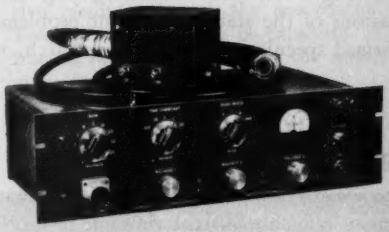

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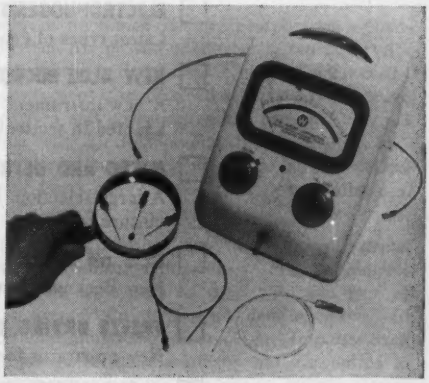

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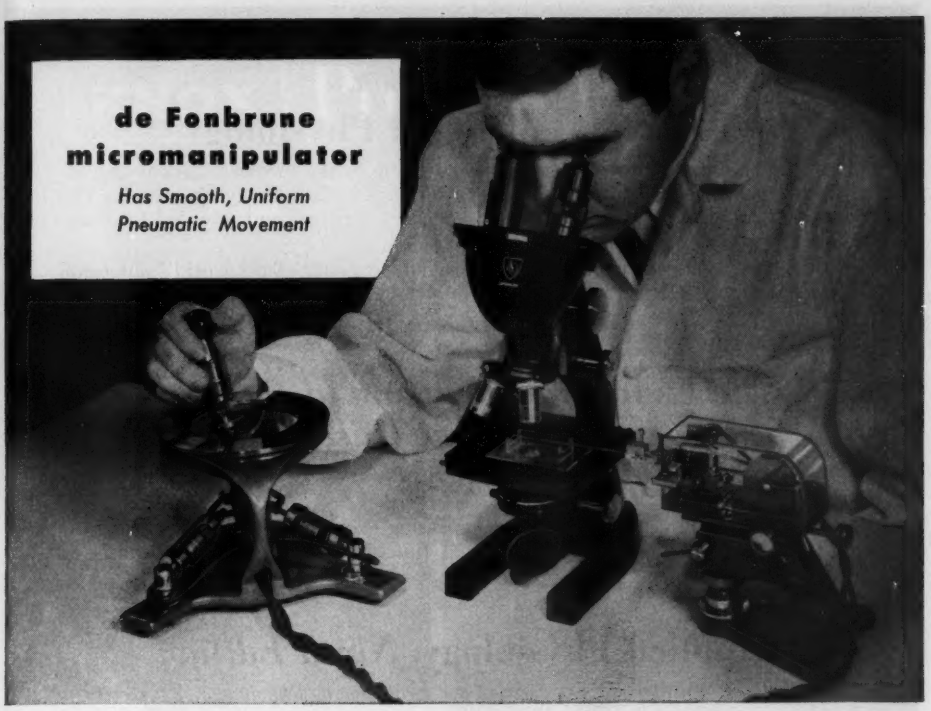

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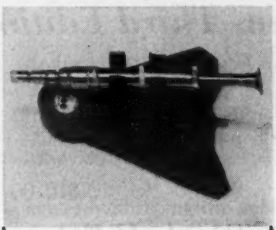

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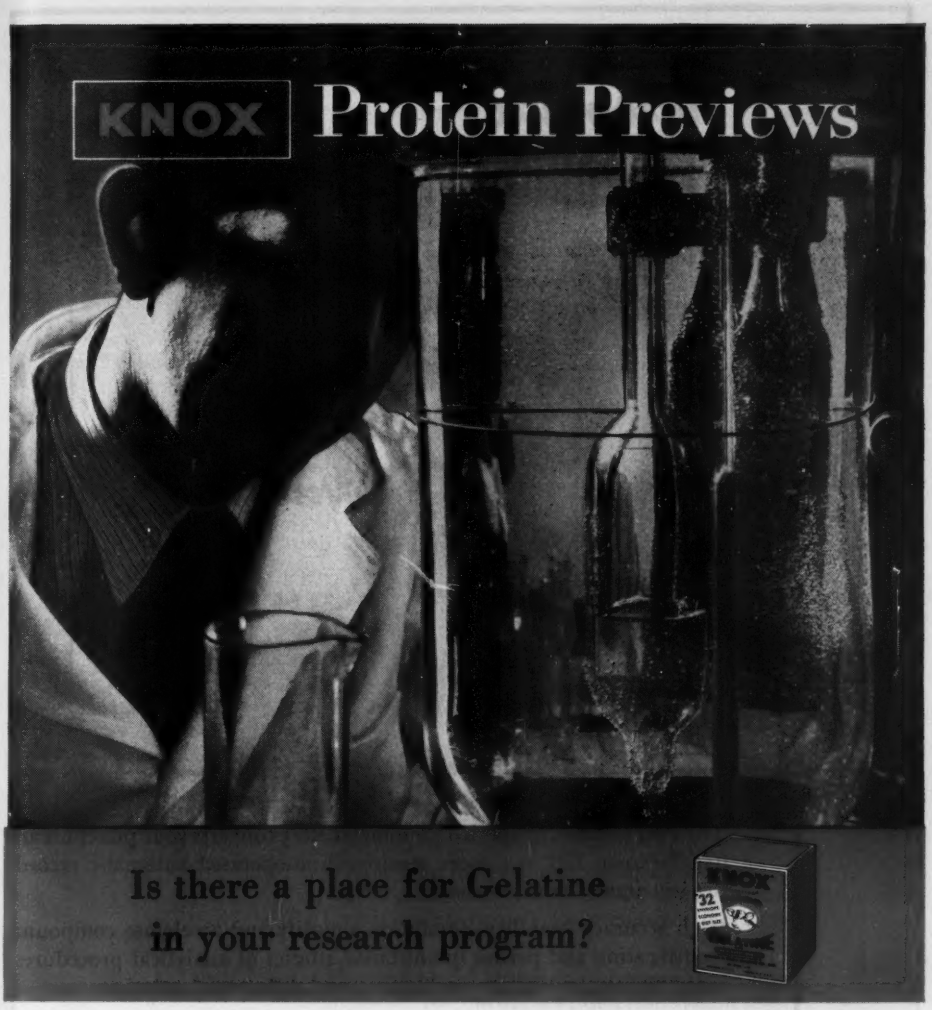

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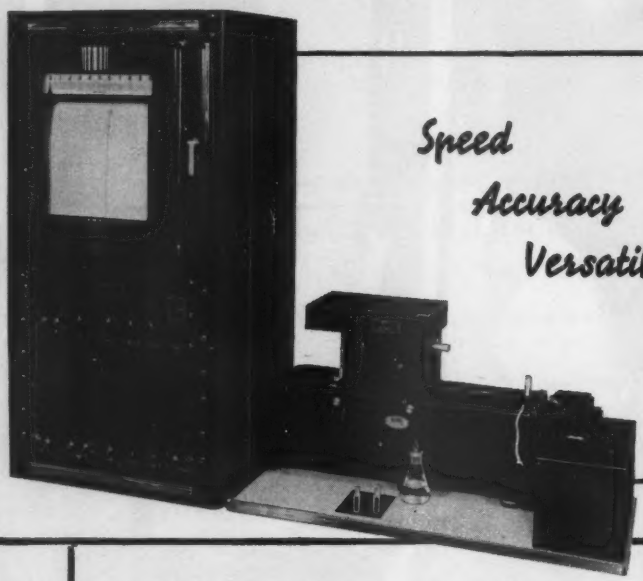

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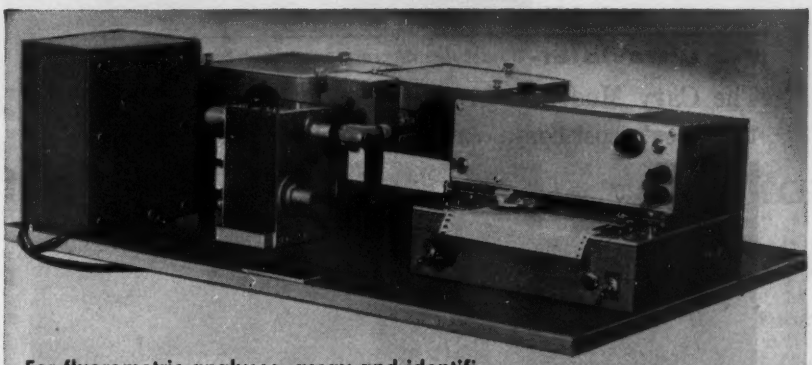

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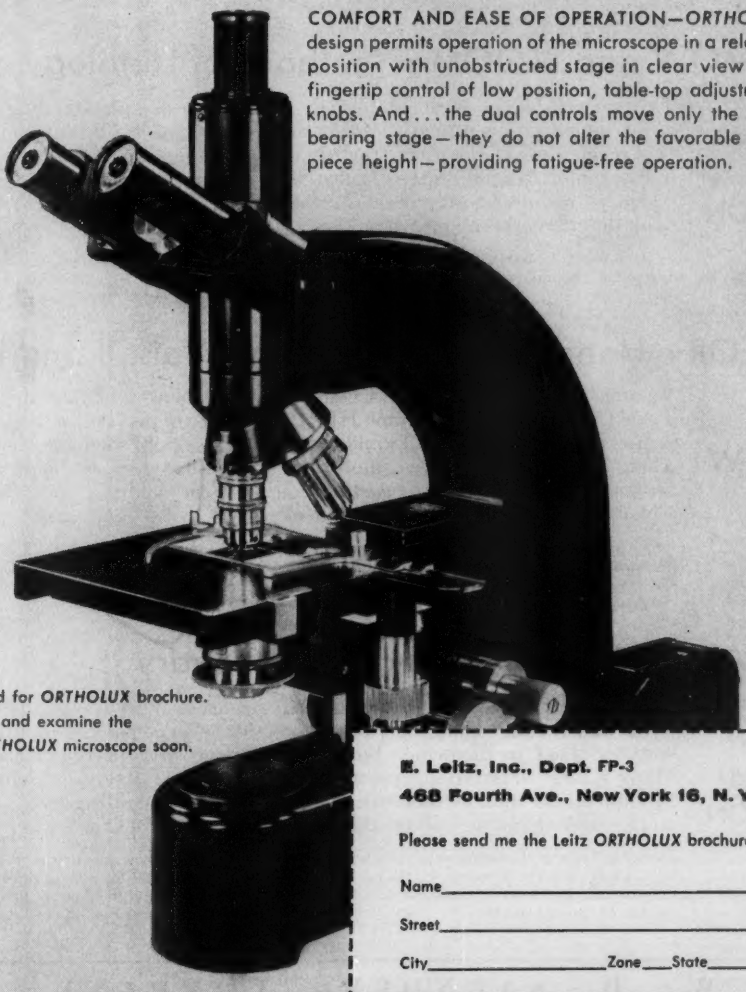

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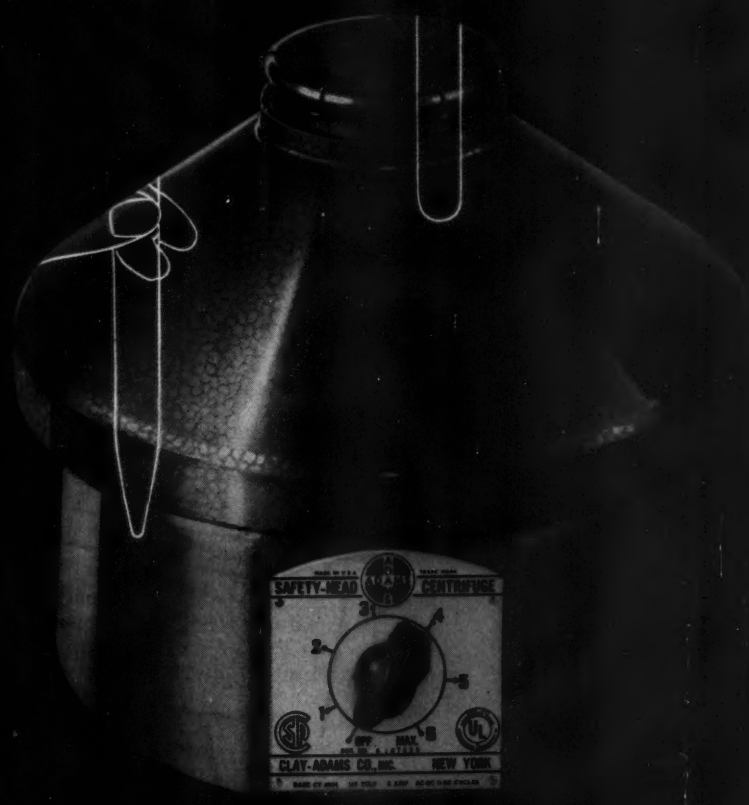

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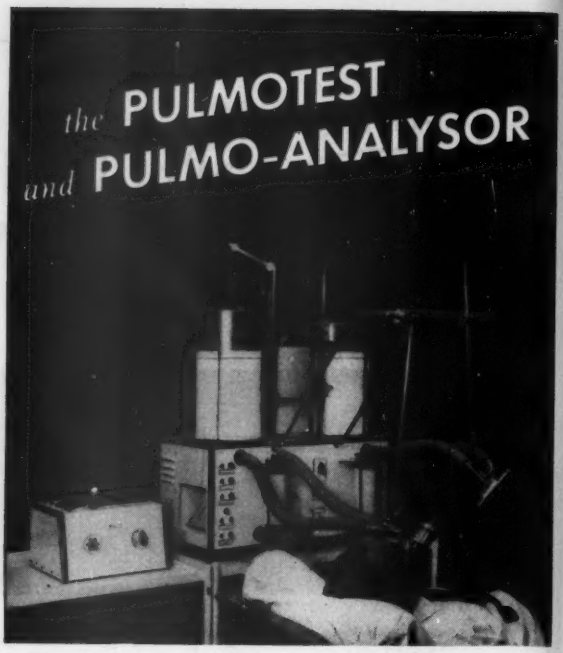

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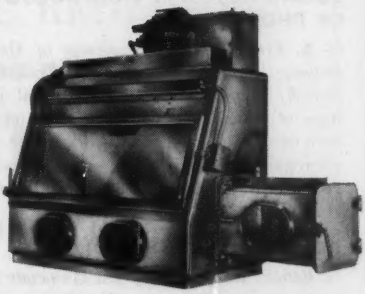

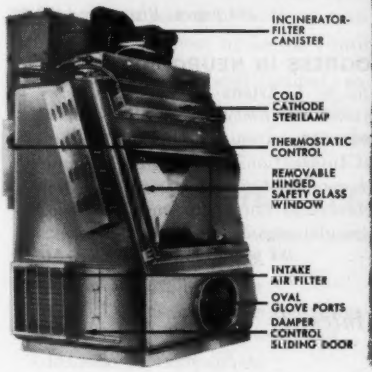

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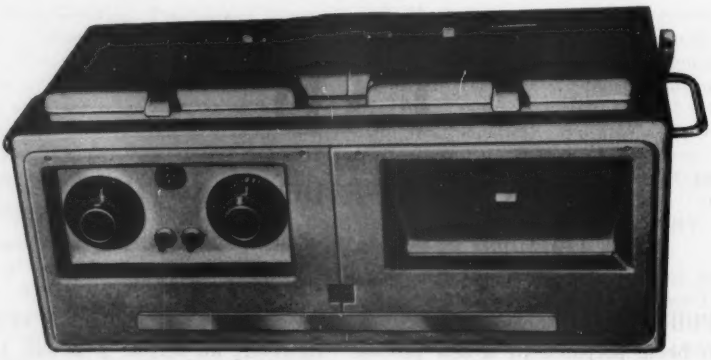

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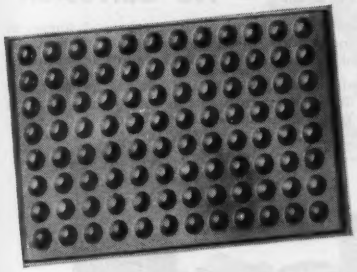

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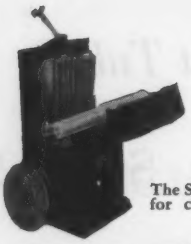

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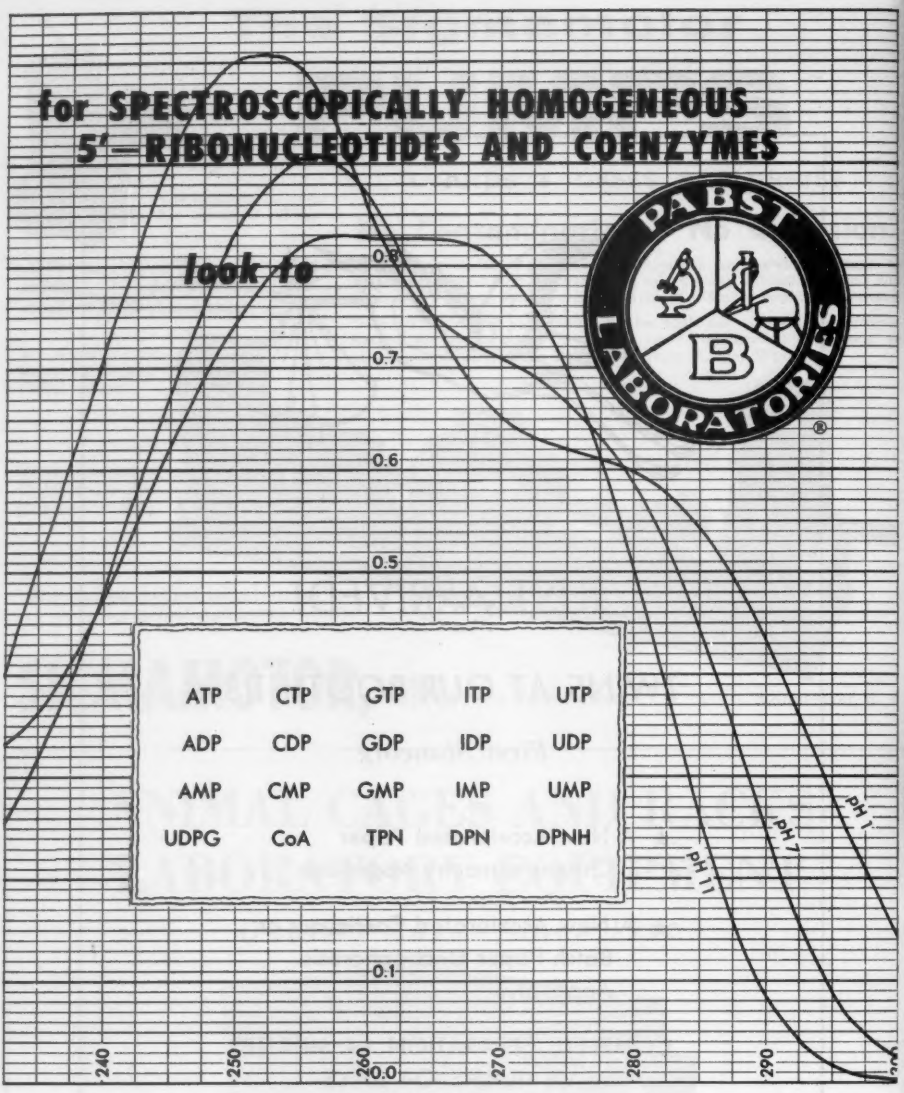

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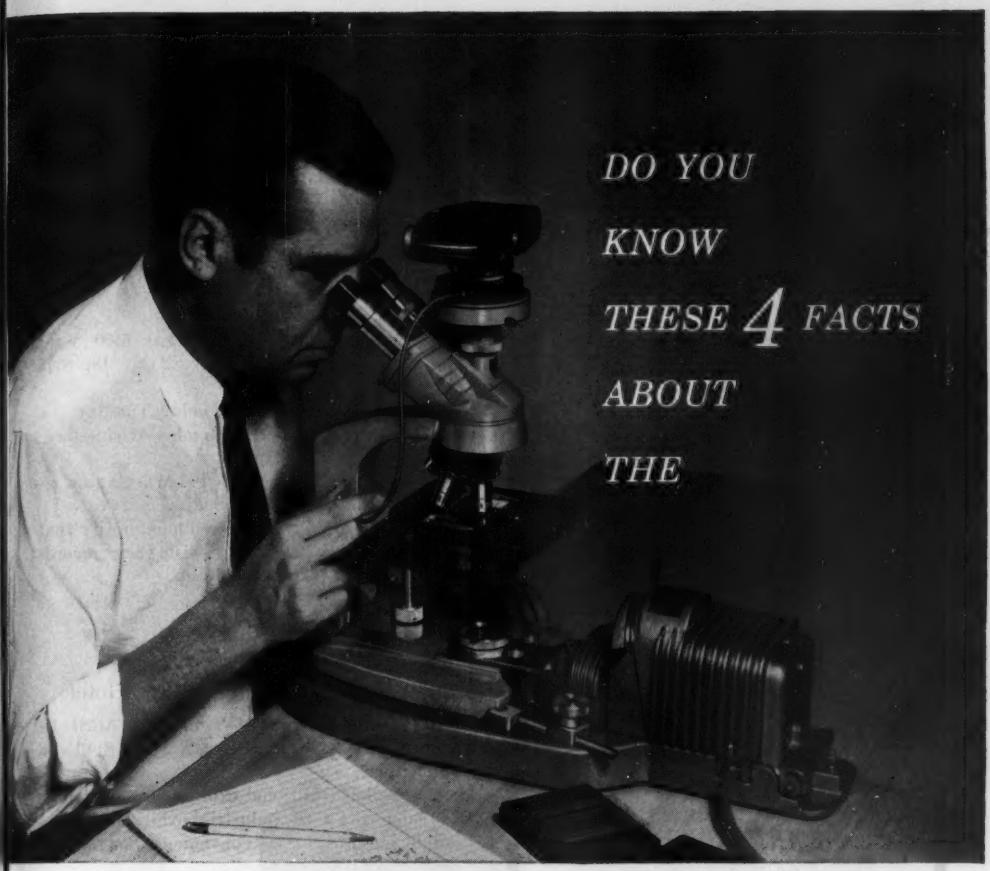

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American Physiological Society

ACTIVITIES OF COMMITTEE ON EDUCATION

Summer Program for College Teachers . . . The American Physiological Society through its Committee on Education has been able to make arrangements whereby college teachers of physiology will be given opportunity to work in active research laboratories for periods of two to three months during the summer. The plan arose out of discussions at the first Workshop in Physiology, held under the auspices of the Committee at Storrs, Connecticut, in August 1955. Several of the teachers attending the Workshop expressed a desire for further research contacts and experience.

Last year the Committee was able to secure a small grant from the National Heart Institute to select eleven college teachers of physiology to study and work in established cardiovascular research laboratories. The "fellowships" were granted by the National Heart Institute on recommendation of the Committee. Since the number of applicants far exceeded the number of available "fellowships," the Committee requested larger and broader support for 1957 from the National

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Science Foundation. This support has been granted, along with continuing support from the National Heart Institute. Support also is being solicited from the Division of Biology and Medicine of the Atomic Energy Commission for additional teachers to study in radiobiology research centers. These grants enable the Committee to make arrangements for approximately fifty college teachers for the summer of 1957.

The personnel of many established research laboratories have been most generous in offering the facilities of their laboratories for this program. These host laboratories represent a wide range of research disciplines including comparative and general physiology as well as animal physiology.

The announcement has gone to several hundred small college biology departments and to several hundred individual college physiology and biology teachers. Those teachers selected from among the applicants are offered stipends, travel allowance, and some dependent allowance. The Committee accepts the principle that applicants chosen shall suffer no financial loss as a result of their summer study. Applicants' preferences are considered in making arrangements. Acceptance of a teacher for training by a research center is requisite.

The immediate purpose of the program is to activate, or reactivate, college teachers of physiology as research workers. The further purpose of the program is to recruit, through their college teachers, new students of physiology who will be willing to undertake graduate study in physiology or a related science.

The Committee has made arrangements with the National Institutes of Health to consider small research grants for some of the college teachers. This plan is intended as a follow-up of the summer program to enable teachers to secure equipment and student assistance for small research activities at their own institutions. Physiologists, in whose laboratories the teachers have worked during the summer, act as research consultants for the teachers receiving grants.

Workshops in Physiology . . . The first Workshop on the Teaching of Undergraduate Physiology was held at Storrs, Connecticut, during the summer of 1955. A second workshop was held at Madison, Wisconsin, in 1956. Two workshops will be held during the summer of 1957. One will be held in the Pacific Coast States under the direction of Dr. Bradley T. Sheer, Professor of Biology, University of Oregon, and one will be held in the Southeastern States under the direction of Dr. Peter R. Morrison, Associate Professor of Zoology and Physiology, University of Wisconsin. Each workshop will run for a two-week period during August. Each will have twenty-five or thirty participants, including discussion leaders of national prominence in teaching and/or research. The discussions will concern approaches to subject mat-

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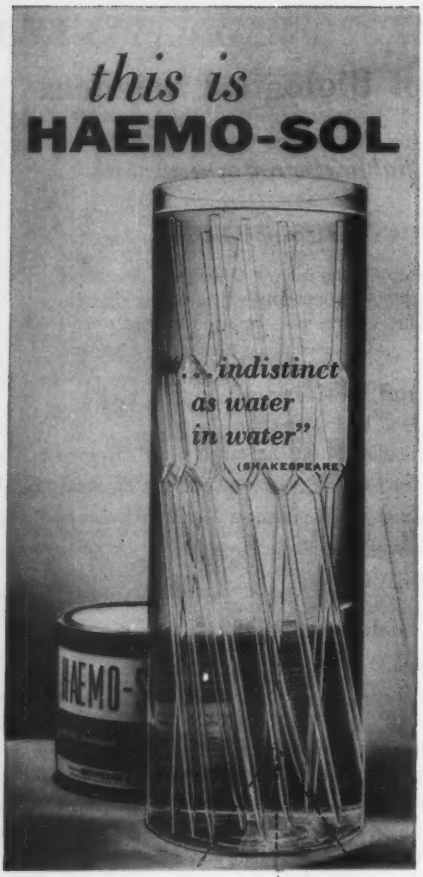

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Teaching Tour . . . The first teaching tour sponsored by the Society was made this past winter by Dr. William R. Amberson, Professor of Physiology, School of Medicine, University of Maryland. He visited twenty colleges, mainly in Ohio and North Carolina. He conferred with faculty groups of biology teachers of whom about one-third are engaged at least part-time in teaching physiology. Usually there was an opportunity for conference with the individual teacher of physiology. Seven lectures were given in as many colleges. Problems of graduate work were discussed with the students in many colleges.

The purpose of the tour was to make a reconnaissance of the present teaching situation in biology, with particular reference to physiology. It was in no sense an investigation or appraisal of any individual school. The same basic problems were found in school after school and the need for help in solving these problems is widespread.

Other Activities . . . The Committee sponsors the annual teaching session at the Spring Meetings. The general subject of the session varies from year to year but is always concerned with some phase of instruction in physiology.

The Committee also sponsors a refresher course at the Fall Meetings. This is a one-day meeting preceding the regular scientific sessions. The course given at the Rochester meeting was on the Teaching of Elementary Hemodynamics in Medical Physiology. It was organized by Dr. A. C. Burton with the help of ten collaborators. It featured some simple demonstrations of working models and a panel discussion of questions submitted by the audience.

Information concerning any of the above activities can be secured from Dr. Ray Daggs, Executive Secretary, American Physiological Society, 9650 Wisconsin Avenue, Washington 14, D. C.

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Centennial . . . The Abel Centennial Celebration of the Pharmacology Society set for September 5, 1957 in Baltimore will hold the spotlight at the Fall Meeting. Addresses in the morning by Sollmann, Amberg, Voegtlin, Marshall and Geiling will review the scientific life, the personality and the lasting contributions of this pioneer professor of pharmacology in this country. At the Centennial Banquet, the voice of Dr. Abel will

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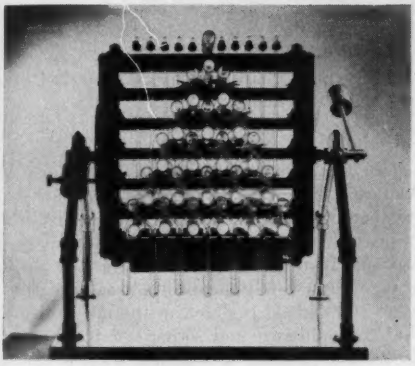

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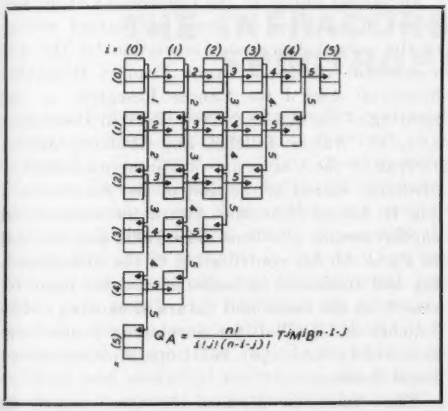

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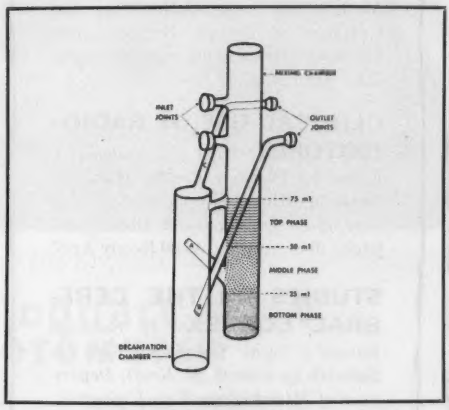

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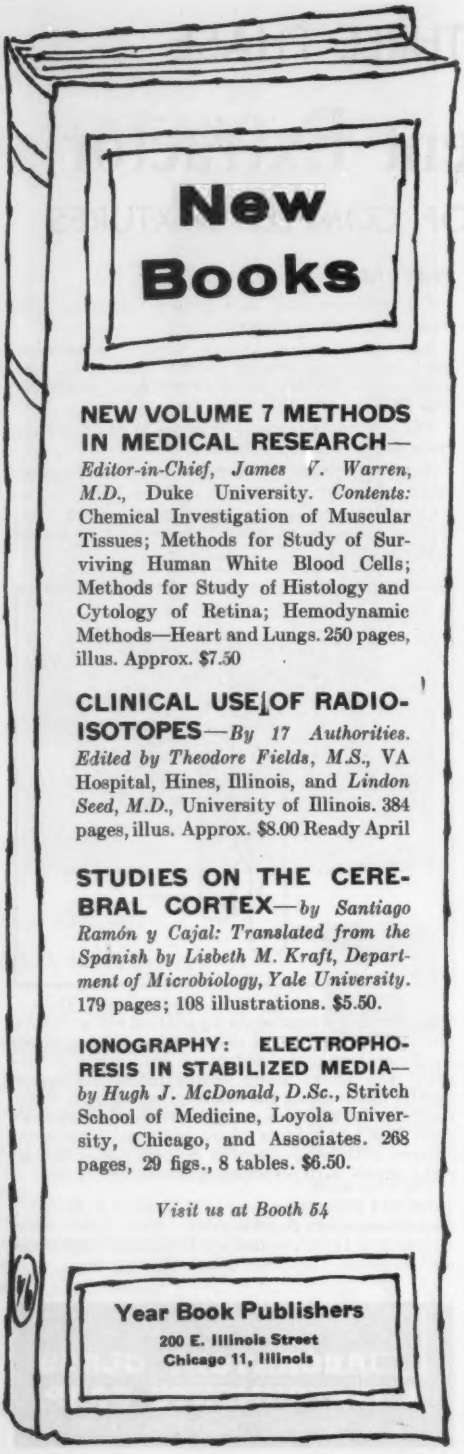
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Pharmacologists' Club . . . On the occasion of the testimonial dinner held on December 18, 1956 for Dr. E. M. K. Geiling, retiring Professor of Pharmacology at the University of Chicago, at which the pharmacology staff of Northwestern University acted as host, there was effected informally the organization of the Midwest Pharmacologists' Club with the purpose of visiting from time to time the laboratories of the members. The next meeting will be held on June 25, 1957 at the Department of Pharmacology, Marquette University Medical School.

New Center

The Department of Health, Education, and Welfare has announced the establishment of the Psychopharmacology Service Center within the Research Grants and Fellowships Branch of the National Institute of Mental Health. The purpose of the Center is to implement a broad program of basic and clinical research in the mechanisms of the tranquilizing and other centrally active drugs. The program will include support through the existing grant and award programs of NIH. Grants will be provided for clinical and basic research, for development of methods and techniques and for cooperative clinical trials. Individuals and research groups are invited to inform the Psychopharmacology Service Center of their work and interest in this area.

Honors

Dr. Jacob Furth, of the Children's Cancer Research Foundation, Boston, was named winner of the annual American Association for the Advancement of Science-Anne Frankel Rosenthal Memorial Award for Cancer Research, at the meeting of the AAAS in New York in December. Drs. C. Walter Lillehei and Richard Allison DeWall of the University of Minnesota School of Medicine shared in the first of the Association's Ida B. Gould Memorial Award for research on cardiovascular problems. The $1000 awards went to Furth for his contribution to the understanding and treatment of leukemia and his basic research on the cause and nature of cancer; and to Lillehei and DeWall for developing a new, and now widely used, open heart operation to correct heart defects.

The American Medical Association, at its Tenth Annual Clinical Meeting in Seattle, Washington, in December, cited Ciba Pharmaceutical Products, Inc., for service to the medical profession, through its presentation of the national television series MEDICAL HORIZONS, designed to "give the American public a new insight into the work and achievement of the

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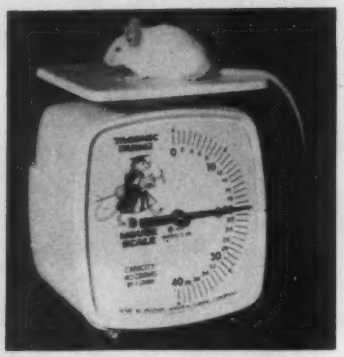

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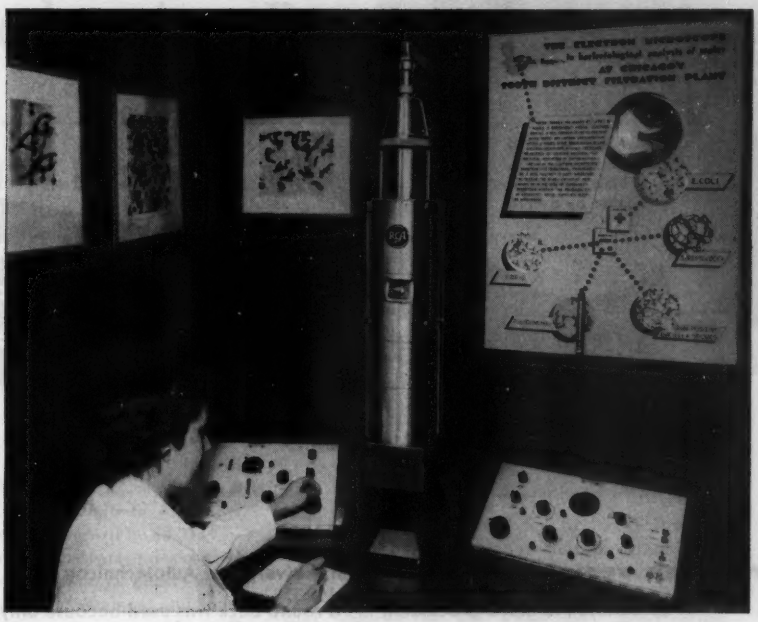
Graduate Courses

The fourth Southern Regional Graduate Summer Session in Statistics will be held June 12-July 20, 1957, at the Virginia Polytechnic Institute, Blacksburg, Va. These summer sessions are designed to benefit (1) research and professional workers who want intensive instruction in basic statistical concepts and modern statistical methodology, (2) teachers of elementary statistical courses, (3) prospective candidates for graduate degrees in statistics, (4) graduate students in other fields who desire supporting work in statistics, and (5) professional statisticians wishing training in advanced specialized theory and methods. Each course offers approximately five quarter hours of graduate credit. Inquiries should be addressed to Boyd Harshbarger, Head, Department of Statistics, Virginia Polytechnic Institute, Blacksburg, Virginia.

The Institute of Industrial Health of the University of Cincinnati offers a formal two-year course to candidates who wish to pursue graduate training in the field of Environmental Hygiene. Candidates should be graduates of approved schools of engineering or science. Applications should be received before April 15 for the academic year beginning in September. Inquiries should be addressed to the Institute of Industrial Health, The Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

NSF—Research Proposals

The Division of Biological and Medical Sciences of the National Science Foundation announces that the next closing date for receipt of research proposals in the life sciences is May 15, 1957. Proposals received after that date will be reviewed following the Fall closing date of September 15, 1957. Inquiries should be addressed to National Science Foundation, Washington 25, D. C.



Technician at the Division of Water Purification, Bureau of Water, Chicago, Illinois, at the controls of the electron microscope.

Photomicrograph of coliform bacteria, greatly magnified.

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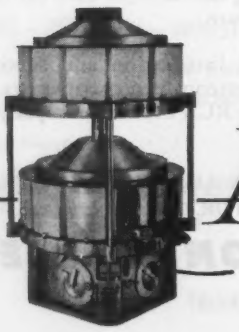

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Federation of American Societies

Federation Proceedings

VOLUME 16 *March 1957* NUMBER 1, PART II

Biology Library

FORTY-FIRST ANNUAL MEETING

CHICAGO, ILLINOIS, APRIL 15–19, 1957

General Information

Registration and Programs

REGISTRATION AREAS will be located in the Lower Lobby of the Conrad Hilton and the Exhibition Hall of the Palmer House. Desks will be open at the following hours: Sunday, April 14, 9:30 A.M.–4:30 P. M.; Monday, April 15, 8:00 A. M.–8:00 P. M.; Tuesday through Friday, April 16–19, 8:00 A. M.–5:00 P. M. The registration fee will be $6.00.

There will be separate registration desks at the Conrad Hilton for non-professional guests who do not wish to attend scientific sessions, and for industrial exhibitors and press representatives. The official badge issued at the registration desks must be worn to secure admission to scientific sessions and other activities of the Federation.

Copies of FEDERATION PROCEEDINGS, March 1957 (Part I, Abstracts, Part II, Program) will be on sale near the registration desks in the Lower Lobby of the Conrad Hilton. Programs *only* will be available in the registration area at the Palmer House. The abstracts are priced at $5.00 and the program at $1.00.

Headquarters Hotels

Headquarters hotels will be the Conrad Hilton for Physiology, Pharmacology, Pathology and Immunology Societies and the Palmer House for the Biochemistry and Nutrition Societies.

Scientific Sessions

Scientific sessions will be held in the Conrad Hilton, Palmer House, Congress and Blackstone Hotels, from Monday afternoon, April 15 through Friday afternoon, April 19. Morning sessions will begin at 9:00 A.M. and afternoon sessions at 1:30 P.M. *except* Friday afternoon when afternoon sessions begin at 1:00 P.M.

Twenty one intersociety sessions on the topics of Connective Tissue, Radiation, Atherosclerosis, Tumors, Blood Clotting and Acetylcholine-Cholinesterase are scheduled throughout the week. (See pages 447–462 for complete programs.) The Motion Picture Session will be Monday, April 15, at 8:00 P.M. in the Grand Ballroom of the Conrad Hilton Hotel.

The Joint Session of the Federation will be Tuesday, April 16, at 8:00 P.M. in the Grand Ballroom of the Conrad Hilton Hotel. The topic will be "Immunological Tolerance" and Dr. Jules Freund, Chairman of the Federation Board, will preside.

Other Meetings

The American Society for Artificial Internal Organs will hold scientific sessions on Sunday and Monday, April 14 and 15, in the Conrad Hilton Hotel. Those desiring to attend these meetings may register at the Federation Registration Desks; the badge issued entitles the bearer to attend any Federation scientific session as well as those of the above society. A listing of the time and location of the scientific sessions appears in the double-page spread.

Federation Board and Society Council Meetings

Meetings of the Councils of the six member societies and of the Federation Board, as well as those of other special committees and editorial boards, will begin on Sunday, April 14. A listing of these meetings is included in the double-page spread.

Exhibits

Exhibits by publishers, scientific equipment, pharmaceutical, chemical and food manufacturers, institutions, and members of the Federated Societies will be located in the Exhibit Hall of the Conrad Hilton. A listing of exhibitors, with a brief description of displays, a floor plan of space locations, and inspection hours will be found on pages 569–580.

Placement Service

The Placement Service will provide interview facilities at the Annual Meeting in Chicago as it has done in former years. The offices will be on the lower floor of the Conrad Hilton Hotel and will be open for candidate registration Sunday, April 14 from 1:00 P.M.–5:00 P.M. Registration of employers will begin Monday, April 15 at 8:15

A.M. The office will be open from 8:15 A.M. to 5:00 P.M. Monday through Thursday. Interviews will be scheduled Tuesday through Thursday during the above hours. The Bulletin Board Room will be open until 6:00 P.M. Monday, Tuesday and Wednesday.

Press Room

The Press Room will be located in Room 500 of the Conrad Hilton. The office will be open at 1:00 p.m. Sunday, April 14. Dr. Richard J. Winzler, Chairman of the Federation Public Information Committee, has arranged to have members of the Committee and a staff available to assist press representatives to secure releases and to schedule press conferences.

Federation Office

The Federation Office will be located in Room 505 on the fifth floor of the Conrad Hilton.

Special Functions

Society dinners, special scientific dinner meetings, group luncheons and breakfasts, and other informal functions which have been scheduled through the Federation Office are listed in the double-page spread in the program. Tickets will be on sale in the Lower Lobby of the Conrad Hilton.

Ladies Committee

A hospitality committee, headed by Mrs. Richard J. Winzler, has planned activities for the wives of member and non-member scientists during the week of the meetings. Ladies are asked to register at the Guest Registration Desk in the Lower Lobby of the Conrad Hilton and are invited to meet members of the committee in Room 509 on the fifth floor of the hotel.

Message Center

A message center will be located in the Lower Lobby of the Conrad Hilton for distribution of mail and exchange of personal messages. A visible index of registrants will be available near the message and information desk.

Lost and Found

Any articles left in session rooms at the close of each day will be forwarded to the Federation Office. Owners of lost property should call at this office. A report to the Federation Office of any articles found during the meetings will be appreciated.

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Federation Program

JOINT SESSION OF THE FEDERATION

TUESDAY, APRIL 16, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Jules Freund

Immunological Tolerance

Immunological tolerance. RAY D. OWEN. *California Inst. of Technology, Pasadena.*

Immunological tolerance in tumor transplantation. HILARY KOPROWSKI. *Research Div., American Cyanamid Company, Pearl River, N. Y.*

In vivo culture of isologous, homologous and heterologous tissue (illustrated by motion picture). GLENN H. ALGIRE. *Natl. Cancer Inst., Bethesda, Md.*

MOTION PICTURES

MONDAY, APRIL 15, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Robert S. Alexander

Brain stimulation in the monkey: technique and results. JOSÉ M. R. DELGADO. *Yale Univ. School of Medicine.* (Physiol.)

Changes following the acute administration of Methocarbamol. FRANCIS A. VAZUKA, NORMA HAJEK-NICHOLS AND JACK FREUND (intr. by P. S. LARSON). *McGuire VA Hosp. and Med. College of Virginia.* (Pharmacol.)

Simultaneous cineradiographic and kymographic study of human gastric antral motility. JERRY F. SCHLEGEL, ALAN W. M. SMITH AND CHARLES F. CODE (intr. by HIRAM E. ESSEX). *Mayo Fndn. and Mayo Clinic.* (Physiol.)

Microcirculatory effects of tilting and acceleration. RITA M. RAPP AND PAUL L. YUDKOFSKY (intr. by BRENTON R. LUTZ). *Wright-Patterson AFB.* (Physiol.)

Regenerating bone marrow in situ: II. Thrombopoiesis. R. KINOSITA, S. OHNO AND H. R. BIERMAN. *City of Hope Med. Research Inst.* (Pathol.)

Biophysical aspects of protoplasmic streaming. PETER A. STEWART AND BABETTE T. STEWART (intr. by JOHN HALDI). *Emory Univ.* (Physiol.)

Biological effects of high oxygen tensions. D. L. GILBERT*, J. FROST*, D. CACCAMISE* AND R. GERSCHMAN. *Univ. of Rochester School of Medicine.* (Physiol.)

INTER-SOCIETY SESSIONS

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 15, 1:30 p.m.

Acetylcholine–Cholinesterase I

MONDAY, 1:30 P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: Richard J. Bing

1:30 **1.** Cholinesterase activity of frog skin. DANIEL C. KOBLICK (intr. by B. T. SCHEER). *Univ. of Oregon.* (Physiol.)

1:45 **2.** Acetylcholine turnover in a ganglion. R. I. BIRKS* AND F. C. MACINTOSH. *McGill Univ.* (Physiol.)

2:00 **3.** Ultraviolet measurement of acetylcholinesterase activity. EMERY M. GAL (intr. by GORDON A. ALLES). *VA Hosp., Sepulveda, Calif., and UCLA Med. Ctr.* (Pharmacol.)

2:15 **4.** Acetylcholine-cholinesterase relationships in lung tissue cultivated in vitro. ALAN BURKHALTER,* MARION JONES* AND R. M. FEATHERSTONE. *State Univ. of Iowa College of Medicine.* (Pharmacol.)

2:30 **5.** Blood cholinesterase studies with simultaneous administration of several combinations of two organic phosphate insecticides. MARTIN W. WILLIAMS,* HENRY N. FUYAT,* JOHN P. FRAWLEY AND O. GARTH FITZHUGH. *Food and Drug Admin.* (Pharmacol.)

2:45 **6.** Comparison of plasma triglyceride esterases and choline esterase in various species. HERBERT BLUMENTHAL* AND GEOFFREY WOODARD. *Food and Drug Admin.* (Pharmacol.)

3:00 **7.** Potentiation of pseudocholinesterase by serotonin and LSD. GEORGE H. FRIED* AND WILLIAM ANTOPOL. *Joseph and Helen Yeamans Levy Fndn. and Beth Israel Hosp.* (Pathol.)

3:15 **8.** Alteration of methionine-S^{35} metabolism by urecholine. MELVIN SIKOV, ROBERT WEBER, ROBERT WHITROCK AND JAMES LOFSTROM (intr. by C. G. JOHNSTON). *Wayne State Univ. School of Medicine.* (Physiol.)

3:30 **9.** Acetylcholine congenors: structure activity of nicotinic and muscarinic action. CARL C. PFEIFFER AND EDMUND W. J. DE MAAR.* *Emory Univ.* (Pharmacol.)

3:45 **10.** Antagonism of some actions of tetraethylpyrophosphate by morin. N. M. BALOTIN* AND J. M. COON. *Jefferson Med. College.* (Pharmacol.)

4:00 **11.** Antagonism to cholinesterase inhibitors by benzoquinonium. GILBERT Y. KOFF* AND J. M. COON. *Jefferson Med. College.* (Pharmacol.)

Tumors I

MONDAY, 1:30 P.M.—SHERATON-BLACKSTONE, HUBBARD ROOM

Chairman: Harold P. Rusch

1:30 **12.** Co-carcinogenic fraction from sesame oil. FRITZ BISCHOFF. *Santa Barbara Cottage Hosp. Research Inst.* (Biochem.)

1:45 **13.** Fibrosarcomas induced by multiple subcutaneous injections of carboxymethylcellulose (CMC), polyvinylpyrrolidone (PVP), and polyoxyethylene sorbitan monostearate (Tween 60). LEHMAN M. LUSKY AND ARTHUR A. NELSON (intr. by HAROLD C. HODGE). *Food and Drug. Admin.* (Pharmacol.)

2:00 **14.** Comparative effects of maleic hydrazide and p-dimethylaminoazobenzene on rat liver. W. A. MANNELL AND H. C. GRICE (intr. by F. C. LU). *Dept. Natl. Health and Welfare, Ottawa.* (Pharmacol.)

2:15 **15.** Urea synthesis during azo-dye car-

cinogenesis as studied in isolated perfused rat liver. WILLIAM T. BURKE* AND LEON L. MILLER. *Univ. of Rochester.* (Biochem.)

2:30 **16.** Effect of certain carcinogenic agents on the total non-protein sulfhydryl content of rat liver. PIERRE-GEORGES ROY,* TOM S. MIYA AND C. JELLEFF CARR. *Purdue Univ.* (Pharmacol.)

2:45 **17.** Intracellular distribution of sulfhydryl groups in livers of tumorous and non-tumorous rats. CHARLES NORMAN, WILLIAM G. ROBERTSON AND ETHEL C. MONTIEGEL (intr. by JOHN C. STICKNEY). *West Virginia Univ.* (Physiol.)

3:00 **18.** Sulfhydryl changes in mouse skin during treatment with certain carcinogens. JOSEPH A. DIPAOLO AND T. F. NIEDBALA (intr. by FRED ROSEN). *Roswell Park Mem. Inst.* (Nutr.)

3:15 **19.** Acylation and deacylation of carcinogenic fluorene derivatives by rat tissue. HERBERT T. NAGASAWA* AND HELMUT R. GUTMANN. *VA Hosp. Minneapolis, and Univ. of Minnesota.* (Biochem.)

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lower Lobby of the Conrad Hilton to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Tuesday Morning, April 16, 9:00 a.m.

Radiation I: Protection Against Radiation; Antibodies

TUESDAY, 9:00 A.M.—CONRAD HILTON, DINING ROOM 2

Chairman: Joe W. Howland

9:00 **20.** Whole-body radiation protection in primates. B. G. CROUCH* AND RICHARD R. OVERMAN. *Univ. of Tennessee College of Medicine.* (Physiol.)

9:15 **21.** Selective intracellular binding of radiation protective agents by mammalian tissues. REAGAN H. BRADFORD,* RAYMOND SHAPIRA* AND DAVID G. DOHERTY. *Oak Ridge Natl. Lab.* (Biochem.)

9:30 **22.** Cause of death in sublethally irradiated mice given rat bone marrow. C. C. CONGDON, T. MAKINODAN AND N. GENGOZIAN.* *Oak Ridge Natl. Lab.* (Pathol.)

9:45 **23.** Effect of bone marrow-spleen injection in mice after fast neutron irradiation. LEONARD J. COLE AND MARIE E. ELLIS (intr. by G. A. FEIGEN). *U. S. Naval Radiological Defense Lab.* (Physiol.)

10:00 **24.** Curative effect of rat bone marrow transfusions in aplastic (severe hypoplastic) anemia in rats induced by Myleran, a radiomimetic chemical. J. K. WESTON, R. E. MAXWELL,* MARY LEE,* JOAN FINZEL* AND R. A. FISKEN.* *Parke, Davis and Co.* (Pathol.)

10:15 **25.** Influence of several thiol compounds on the mortality and survival time of x-irradiated mice. J. F. NOBLE,* V. J. PLZAK,* R. M. DOWBEN* AND J. DOULL. *USAF Radiation Lab. and Univ. of Chicago.* (Pharmacol.)

10:30 **26.** Rat platelets in irradiated, rat bone marrow-injected mice. L. H. SMITH, T. MAKINODAN AND C. C. CONGDON (intr. by ALEXANDER HOLLAENDER). *Oak Ridge Natl. Lab.* (Physiol.)

10:45 **27.** Modification of the antibody response by injection of spleen homogenates in x-irradiated rats. MARIANO F. LAVIA,* MELBA J. ROBSON* AND ROBERT W. WISSLER. *Argonne Cancer Research Hosp. and Univ. of Chicago.* (Immunol.)

11:00 **28.** Alteration of antigenicity of ovalbumin by γ-rays. CHARLES A. LEONE. *Argonne Natl. Lab. and Univ. of Kansas.* (Immunol.)

11:15 **29.** Effect of x-irradiation on the antigen-host genetic relationship. TAKASHI MAKINODAN AND ISABEL SHEKARCHI.* *Oak Ridge Natl. Lab.* (Immunol.)

11:30 **30.** Inhibition of anamnestic responsiveness by x-radiation. ANDREW THOMSON AND DAVID W. TALMAGE (intr. by C. W. HAMMOND). *Univ. of Chicago.* (Immunol.)

11:45 **31.** Influence of dose of total-body irradiation on successful transplantation of homologous bone marrow in rats. T. T. ODELL, JR. AND BARBARA C. CALDWELL (intr. by N. G. ANDERSON). *Oak Ridge Natl. Lab.* (Physiol.)

Tumors II

TUESDAY, 9:00 A.M.—SHERATON-BLACKSTONE, HUBBARD ROOM

Chairman: Robert E. Stowell

9:00 **32.** Effects of mouse tissue extracts on mitosis of ascites tumor cells. EDWIN NISHIMURA, THOMAS HARWOOD,* JOSEPH BAUM* AND PAUL PUTONG.* *Northwestern Univ. Med. School.* (Pathol.)

9:15 **33.** Growth stimulating actions of liver preparations. K. E. PASCHKIS, A. CANTAROW AND J. W. GODDARD.* *Jefferson Med. College.* (Physiol.)

9:30 **34.** Effects of hormones on induction of skin tumors in mice. JOSEPH MEITES. *Michigan State Univ.* (Physiol).

9:45 **35.** Influence of goitrogens on induction of deciduoma in rat uterus. STANLEY R. GLASSER (intr. by T. R. NOONAN). *Univ. of Rochester.* (Physiol.)

10:00 **36.** Histological effects of I^{131} on human hypophysis. AGNES B. RUSSFIELD. *Massachusetts General Hosp.* (Pathol.)

10:15 **37.** Simultaneous determination of blood pressure and blood pH in suspected pheochromocytoma. GRACE M. ROTH, HERBERT A. ROEDLING* AND RICHARD M. SHICK.* *Mayo Clinic and Fndn.* (Physiol.)

10:30 **38.** In vitro response to ACTH of functional experimental adrenocortical tumors. ARTHUR I. COHEN AND ERIC BLOCH (intr. by JACOB FURTH). *Children's Cancer Research Fndn., and Worcester Fndn.* (Pathol.)

10:45 **39.** Effect of stress on tumorigenesis in

rats. JOHN B. FIELD, THOMAS M. GRAHAM,* LOUIS T. BASCOY,* WILLIAM HARRIS* AND HERMAN M. HARVEY.* *Univ. of Southern California and Los Angeles County Hosp.* (Biochem.)

11:00 **40.** Production of hydrocortisone by a human testicular tumor. BILLY BAGGETT,* LEWIS L. ENGEL, LINDA L. FIELDING,* KENNETH SAVARD, RALPH I. DORFMAN, FRANK L. ENGEL* AND HARRY T. MCPHERSON.* *Harvard Med. School, Worcester Fndn. and Duke Univ. School of Medicine.* (Biochem.)

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Exhibits

CONRAD HILTON, EXHIBITION HALL

Monday–Thursday, April 15–18, 8:45 A.M.–6:00 P.M.
Friday, April 19, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 569.

Tuesday Afternoon, April 16, 1:30 p.m.

Radiation II: Uptake of Emitters; Effects of Different Radiations

TUESDAY, 1:30 P.M.—CONRAD HILTON, DINING ROOM 2

Chairman: R. E. Zirkle

1:30 **41.** Comparison of I^{131} counts from intact and extirpated thyroids in mice. DAVID L. JOFFES (intr. by SHIELDS WARREN). *New England Deaconess Hosp.* (Pathol.)

1:45 **42.** Uptake of fission products and neutron induced radionuclides by the clam. J. K. GONG, W. H. SHIPMAN, H. V. WEISS AND S. H. COHN (intr. by R. W. BRAUER). *U. S. Naval Radiological Defense Lab.* (Pharmacol.)

2:00 **43.** Placental transfer of calcium and strontium in the rat and rabbit. R. H. WASSERMAN,* C. L. COMAR, M. M. NOLD* AND F. W. LENGEMANN.* *Oak Ridge Inst. of Nuclear Studies.* (Biochem.)

2:15 **44.** Factors modifying radiostrontium excretion in man. HERTA SPENCER, JOSEPH SAMACHSON, BERNARD KABAKOW AND DANIEL LASZLO (intr. by EUGENE Y. BERGER). *Montefiore Hosp.* (Physiol.)

2:30 **45.** Single cell plating techniques applied to radiobiologic studies in mammalian cells. THEODORE T. PUCK. *Univ. of Colorado Med. Ctr.* (Immunol.)

2:45 **46.** Rate of recovery from gamma-radiation injury as a function of the amount of injury. HOWARD H. VOGEL, JR., JOHN W. CLARK AND DONN L. JORDAN (intr. by DOUGLAS E. SMITH). *Argonne Natl. Lab.* (Physiol.)

3:00 **47.** Modification of protection afforded by pre-exposure fasting against intestinal radiation mortality. S. TOM TAKETA AND MARGUERITE N. SWIFT (intr. by F. W. WEYMOUTH). *U. S. Naval Radiological Defense Lab.* (Physiol.)

3:15 **48.** Relative biological effectiveness of heavy particles from the $B^{10}(n,c)Li^7$ reaction for skin lesions in swine. J. S. ROBERTSON, V. P. BOND,* E. P. CRONKITE, O. D. EASTERDAY* AND S. M. LIPPINCOTT.* *Brookhaven Natl. Lab.* (Physiol.)

3:30 **49.** Effect of fractionation of beta radiation upon rat skin. ELLY M. JACOBSEN,* A. K. DAVIS AND EDWARD L. ALPEN. *U. S. Naval Radiological Defense Lab.* (Physiol.)

3:45 **50.** Influence of the "time factor" in radiation effects on biological systems. ANNA GOLDFEDER AND GRACE E. CLARKE.* *New York Univ. Graduate School of Arts and Sciences.* (Physiol.)

4:00 **51.** Radiation-induced "dental death" in mice. A. C. UPTON, R. F. BUFFETT,* J. FURTH AND D. G. DOHERTY. *Oak Ridge Natl. Lab., and Children's Cancer Research Fndn.* (Pathol.)

Wednesday Morning, April 17, 9:00 a.m.

Radiation III: Physiological Effects of Radiation

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, DINING ROOM 2

Chairman: Howard J. Curtis

9:00 **52.** Changes in gastric motility of the rat during radiation exposure. DONALD J. KIMELDORF. *U. S. Naval Radiological Defense Lab.* (Physiol.)

9:15 **53.** Effects of gastrointestinal tract irradiation on Fe^{59} uptake by rats. MAURICE F. SULLIVAN (intr. by KENNETH P. DUBOIS). *General Electric Co.* (Pharmacol.)

9:30 **54.** Dextran retention in irradiated rabbits. LAWRENCE E. DETRICK,* HARVEY C. UPHAM AND THOMAS J. HALEY. *Univ. of California School of Medicine.* (Pharmacol.)

9:45 **55.** Blood volume and other studies in hamsters x-irradiated with upper body shielded. MARGUERITE N. SWIFT AND S. TOM TAKATA.* *U. S. Naval Radiological Defense Lab.* (Physiol.)

10:00 **56.** Hypocalorically fed retarded rats as test subjects in the study of delayed effects of x-irradiation. H. W. CARROLL* AND R. W. BRAUER. *U. S. Naval Radiological Defense Lab.* (Pharmacol.)

10:15 **57.** Diuresis in the x-irradiated rat. ROBERT E. KAY AND CECIL ENTENMAN (intr. by I. L. CHAIKOFF). *U. S. Naval Radiological Defense Lab.* (Physiol.)

10:30 **58.** Effects of sub-lethal doses of x-irradiation during pregnancy on the reproductive performance of the rat. AMBER L. S. CHENG,* R. B. ALFIN-SLATER AND B. H. ERSHOFF. *Univ. of Southern California School of Medicine.* (Nutr.)

10:45 **59.** Chemical and EEG changes in the central nervous system following 700r total body x-irradiation. E. S. REDGATE,* W. O. CASTER AND W. D. ARMSTRONG. *Univ. of Minnesota.* (Biochem.)

11:00 **60.** Nephritis induced by thorium^{228} citrate in dogs. TERENCE H. COCHRAN,* JAMES S. ARNOLD AND WEBSTER S. S. JEE.* *Univ. of Utah College of Medicine.* (Pathol.)

Tumors III

WEDNESDAY, 9:00 A.M.—SHERATON-BLACKSTONE, MAYFAIR ROOM

Chairman: Leon L. Miller

9:00 **61.** Cytochemical effects of azaserine and triethylene thio-phosphoramide (TSPA) on the ribose nucleic acid (RNA) of Ehrlich ascites tumor cells. ANTON LINDNER (intr. by JOSEPH J. LALICH). *Univ. of Wisconsin.* (Pathol.)

9:15 **62.** Effect of A-methopterin upon purine biosynthesis in susceptible and dependent strains of L1210 leukemic tumors. ARTHUR J. TOMISEK (intr. by HOWARD E. SKIPPER). *Southern Research Inst.* (Biochem.)

9:30 **63.** Evidence for excretion of formiminoglutamic acid (FIGLU) accompanying usage of pteroylglutamic acid (PGA) antagonists in man. HARRY P. BROQUIST AND A. LEONARD LUHBY.* *American Cyanamid Co., and New York Med. College.* (Biochem.)

9:45 **64.** Purine biosynthesis in azaserine-sensitive and -resistant lines of the mouse plasma cell neoplasm 70429. E. P. ANDERSON, BRUCE LEVENBERG AND L. W. LAW (intr. by WALTER C. SCHNEIDER). *Natl. Insts. of Health.* (Biochem.)

10:00 **65.** Metabolism of human leukemic lymphoblasts and its normalization by methotrekate and 6-mercaptopurine. DEAN BURK, JOHN LASZLO,* JAMES STENGLE* AND KENT WIGHT.* *Natl. Cancer Inst.* (Biochem.)

10:15 **66.** Mechanism of action of 5-fluoro pyrimidines. CHARLES HEIDELBERGER, L. BOSCH,* N. K. CHAUDHURI* AND PETER B. DANNEBERG.* *Univ. of Wisconsin Med. School.* (Biochem.)

10:30 **67.** Toxicity of 5-fluorouracil. T. WONG* AND W. M. BENSON. *Hoffmann-La Roche, Inc.* (Pharmacol.)

10:45 **68.** Metabolism of tumors and its relationship to changed distribution of cytoplasmic ribonucleic acid during carcinogenesis. SILVIO FIALA,* ANNA FIALA* AND E. E. SPROUL. *Francis Delafield Hosp., Columbia Univ.* (Pathol.)

11:00 **69.** Basic protein in the cytoplasm of Ehrlich ascites tumor cells. W. H. CARNES AND B. R. FORKER.* *Stanford Univ. School of Medicine and Univ. of Utah College of Medicine.* (Pathol.)

11:15 **70.** Synthesis and utilization of deoxyribose-5-phosphate (DRP) by normal liver and malignant hepatoma. CARL E. SHONK* AND GEORGE E. BOXER. *Merck Inst. for Therapeutic Research.* (Biochem.)

Wednesday Afternoon, April 17, 1:30 p.m.

Radiation IV: Biochemical Effects of Radiation

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, DINING ROOM 2

Chairman: Kenneth P. DuBois

1:30 **71.** Serum glutamic-oxalacetic transaminase activity in irradiated animals. D. F. PETERSEN, C. C. LUSHBAUGH AND P. LEE.* *Los Alamos Scientific Lab.* (Pharmacol.)

1:45 **72.** Effect of x-irradiation and other hematopoietic depressants on amino acid incorporation and carbohydrate metabolism of rabbit bone marrow. EDWIN M. UYEKI* AND PAUL R. SALERNO. *Western Reserve Univ.* (Pharmacol.)

2:00 **73.** Creatine metabolism in rats following whole-body irradiation. CLYDE M. WILLIAMS, GEORGE M. KRISE, DONALD R. ANDERSON AND ROBERT M. DOWBEN (intr. by HENRY M. SWEENEY). *USAF School of Aviation Medicine and Balcones Research Ctr.* (Physiol.)

2:15 **74.** Biochemical changes in potatoes initiated by Co^{60} irradiation in the decakilorep range. SIGMUND SCHWIMMER, WILLIAM J. WESTON* AND RACHEL U. MAKOWER.* *Western Utilization Research Branch, USDA.* (Biochem.)

2:30 **75.** Amino acid utilization in the irradiated rat. MARGARET G. MOREHOUSE AND RONALD L. SEARCY.* *Univ. of Southern California.* (Biochem.)

2:45 **76.** Incorporation of adenine-8-C^{14} and P^{32} into rat thymus at various intervals after 100r x-irradiation. HELEN HARRINGTON* AND PAUL LAVIK. *Western Reserve Univ.* (Biochem.)

3:00 **77.** Hepatic glycogen, lipogenesis, and glucose-6-phosphatase in x-irradiated rats. JOHN G. CONIGLIO, JOHN C. KIRSCHMAN AND GRANVILLE W. HUDSON (intr. by WILLIAM J. DARBY). *Vanderbilt Univ. School of Medicine.* (Biochem.)

3:15 **78.** Cholesterol biosynthesis in liver cell fractions from x-irradiated and fasting rats. NANCY L. R. BUCHER, ALDEN V. LOUD* AND KATHLEEN MCGARRAHAN.* *Massachusetts General Hosp.* (Physiol.)

3:30 **79.** Suspected circulating "radiotoxins" in adrenalectomized irradiated rats. R. D. CAMPO,* V. P. BOND* AND E. P. CRONKITE. *St. John's Univ. Grad. School and Brookhaven Natl. Lab.* (Physiol.)

3:45 **80.** Glutathione protection in x-irradiated eyes. ARNOLD A. SWANSON, HEINRICH W. ROSE AND JACK I. TAUBE (intr. by H. S. WIGODSKY). *USAF School of Aviation Medicine.* (Physiol.)

Tumors IV

WEDNESDAY, 1:30 P.M.—SHERATON-BLACKSTONE, MAYFAIR ROOM

Chairman: Harold L. Stewart

1:30 **81.** Leukoagglutination V—relationship of monocytic leukemia, plasma cell myeloma and thymoma in relation to leukemia and neoplasia. BERNHARD STEINBERG AND RUTH MARTIN.* *Toledo Hosp. Inst. of Med. Research.* (Immunol.)

1:45 **82.** Toxic effects of chlorambucil (CB1348) in laboratory animals. ERNEST C. HAGAN,* LEON HURWITZ, K. J. DAVIS* AND PAUL M. JENNER.* *Food and Drug Admin.* (Pharmacol.)

2:00 **83.** Effect of chlorambucil on growth and metabolism of yeast (torulopsis sp.). RICHARD S. YOUNG* AND LEON HURWITZ. *Food and Drug Admin.* (Pharmacol.)

2:15 **84.** 6-aminonicotinamide and related niacin antagonists. S. L. HALLIDAY,* A. SLOBODA,* L. W. WILL* AND J. J. OLESON. *American Cyanamid Co.* (Biochem.)

2:30 **85.** Octoiodofluorescein as an agent for localizing brain tumors in mice. EDWARD C. TOCUS* AND GEORGE T. OKITA. *Argonne Cancer Research Hosp. and Univ. of Chicago.* (Pharmacol.)

2:45 **86.** Porphyrins of tumor tissue. IRVING MELCER,* JOHN PILIGIAN* AND JAMES M. ORTEN. *Wayne State Univ. College of Medicine.* (Nutr.)

3:00 **87.** Alteration of iodine metabolism by fractions of tumor. KENNETH G. SCOTT, MARIE B. DANIELS* AND RONALD R. SCHELINE.* *Univ. of California.* (Pharmacol.)

3:15 **88.** Spreading effect of hyaluronidase on free tumor cells in the peritoneal fluid (ascites tumor). HORACE GOLDIE, CALVIN A. BROWN,* GEORGE L. SAMPSON* AND CHARLES S. THURSTON.* *Lab. of Experimental Oncology, Nashville, Tenn.* (Immunol.)

Thursday Morning, April 18, 9:00 a.m.

Atherosclerosis I

THURSDAY, 9:00 A.M.—CONGRESS, GOLD ROOM

Chairman: Ancel Keys

9:00 **89.** Safflower oil, hydrogenated safflower oil and ascorbic acid effects on serum cholesterol in man. JOSEPH T. ANDERSON, FRANCISCO GRANDE AND ANCEL KEYS. *Univ. of Minnesota and Hastings State Hosp.* (Nutr.)

9:15 **90.** Effect of ferric chloride and cholic acid on mobilization of elevated liver cholesterol in the mouse. W. L. ANTHONY,* W. T. BEHER AND G. D. BAKER.* *Edsel B. Ford Inst. for Med. Research.* (Biochem.)

9:30 **91.** Diet and serum cholesterol of Japanese men in Japan, Hawaii and California. ANCEL KEYS, NOBORU KIMURA,* AKIRA KUSUKAWA,* BRIAN BRONTE-STEWART,* NILS P. LARSEN* AND MARGARET HANEY KEYS.* *Univ. of Minnesota.* (Biochem.)

9:45 **92.** Effect of serum lipids in rats fed plant oils with and without cholesterol. COLEMAN R. SESKIND,* MARJORIE T. SCHROEDER,* RICHARD RASMUSSEN* AND ROBERT W. WISSLER. *Univ. of Chicago.* (Pathol.)

10:00 **93.** Mechanism of triton induced hypercholesteremia. MEYER FRIEDMAN AND SANFORD O. BYERS. *Harold Brunn Inst.* (Physiol.)

10:15 **94.** Effect of dietary protein and fat on changes of serum cholesterol in mature roosters. M. KOKATNUR,* N. T. RAND,* F. A. KUMMEROW* AND H. M. SCOTT. *Univ. of Illinois.* (Nutr.)

10:30 **95.** Vitamin B_{12} deficiency and hypercholesterolemia. JENG M. HSU AND BACON F. CHOW (intr. by A. M. BAETJER). *Johns Hopkins School of Hygiene and Public Health.* (Physiol.)

10:45 **96.** Influence of sucrose and casein on plasma cholesterol in animals on purified diets. W. C. GRANT AND M. J. FAHRENBACH.* *American Cyanamid Co.* (Physiol.)

11:00 **97.** Effect of cholesterol feeding on plasma lipide fractions of adrenalectomized dogs. B. S. POWERS AND N. R. DI LUZIO (intr. by D. B. MORRISON). *Univ. of Tennessee.* (Biochem.)

11:15 **98.** Relationship among plasma cholesterol, aortic cholesterol and blood pressure in the hen. H. S. WEISS,* R. K. RINGER* AND P. D. STURKIE. *Rutgers, State Univ. of New Jersey.* (Physiol.)

11:30 **99.** Effect of dietary fat, protein and choline upon serum lipids and lipoproteins of the rat. ROBERT E. OLSON, JOHN R. JABLONSKI* AND EDMUND TAYLOR.* *Univ. of Pittsburgh Grad. School of Public Health.* (Nutr.)

Blood Clotting I

THURSDAY, 9:00 A.M.—SHERATON-BLACKSTONE, MAYFAIR ROOM

Chairman: A. H. Ware

9:00 **100.** Factors which influence survival of transfused platelets. DUDLEY P. JACKSON, JULIUS R. KREVANS,* ALVIN MARGOLIUS, JR.* AND WILBUR E. MATTISON, JR.* *Johns Hopkins Univ. and Hosp.* (Physiol.)

9:15 **101.** Alterations in hemostatic mechanism in generalized Shwartzman reaction. DONALD G. MCKAY, SANDOR SHAPIRO* AND ARTHUR T. HERTIG. *Harvard Med. School.* (Pathol.)

9:30 **102.** Two new entities in human thromboplastin generation of fundamental and clinical significance. S. GOLLUB, ALEX ULIN AND JOYCE BLACK (intr. by FLOYD J. WIERCINSKI). *Hahnemann Med. College and Sidney Hillman Med. Ctr.* (Physiol.)

9:45 **103.** Defective platelets as a cause of deficient generation of thromboplastin in a family of hemophilics. R. R. HOLBURN,* R. T. CARROLL* AND L. M. TOCANTINS. *Jefferson Med. College.* (Physiol.)

10:00 **104.** Calcium and labile factor activity. F. D. MANN. *Palo Alto Hosp. Research Fndn.* (Pathol.)

10:15 **105.** Erythrocyte and platelet thromboplastic cell component. GEORGE Y. SHINOWARA. *Ohio State Univ.* (Biochem.)

10:30 **106.** Comparison of tissue and plasma thromboplastic activities. JESSICA H. LEWIS AND PAUL DIDISHEIM.* *Univ. of Pittsburgh.* (Physiol.)

10:45 **107.** Phospholipid structure and partial thromboplastic activity. GEORGE ROUSER,

SIDNEY D. WHITE AND DAVID SCHLOREDT (intr. by HOWARD R. BIERMAN). *City of Hope Med. Ctr.* (Pharmacol.)

11:00 **108.** Phospholipide antithromboplastin. M. J. SILVER, D. L. TURNER, R. R. HOLBURN, I. R. SCHWARTZ AND L. M. TOCANTINS (intr. by L. A. KAZAL). *Jefferson Med. College.* (Biochem.)

Tumors V

THURSDAY, 9:00 A.M.—SHERATON-BLACKSTONE, HUBBARD ROOM

Chairman: Sidney Weinhouse

9:00 **109.** Effects of insulin and anti-insulins on melanoma and brain glucolysis in relation to sodium-potassium balance. MARK WOODS. *Natl. Cancer Inst.* (Biochem.)

9:15 **110.** Hexose uptake in ascites tumor cells. MARSHALL W. NIRENBERG AND JAMES F. HOGG (intr. by JOSEPH P. CHANDLER). *Univ. of Michigan.* (Biochem.)

9:30 **111.** Selective inhibition of glycolysis in slices of neoplastic tissues by fluoropyruvic acid. HARRIS BUSCH, ESTHER W. OLLE AND DAVID L. ABRAMS (intr. by K. R. UNNA). *Univ. of Illinois College of Medicine.* (Pharmacol.)

9:45 **112.** Glycolysis in the growing and regressing Flexner-Jobling carcinoma. P. J. FODOR, P. TOMASHEFSKY* AND C. FUNK. *New York Med. College and Funk Fndn. for Med. Research.* (Biochem.)

10:00 **113.** Effects of oxamic acid on metabolism of ascites tumors. JOHN PAPACONSTANTINOU* AND SIDNEY P. COLOWICK. *Johns Hopkins Univ.* (Biochem.)

10:15 **114.** Incorporation of acetate-1-C^{14} into cholesterol by human brain tumors. DANIEL L. AZARNOFF,* GEORGE L. CURRAN AND WILLIAM P. WILLIAMSON.* *Univ. of Kansas Med. Ctr.* (Biochem.)

10:30 **115.** Continuous recording of expiratory $C^{14}O_2$ from acetate and glucose in normal and tumor mice. JON J. KABARA,* GEORGE T. OKITA AND GEORGE V. LEROY.* *Argonne Cancer Research Hosp. and Univ. of Chicago.* (Pharmacol.)

10:45 **116.** Pharmacologic action of vitamin A on the skin after intracutaneous injection. HOWARD A. JEWELL,* HARRY TAUBE,* MAUDE E. NICHOLLS* AND ROBERT A. LEHMAN. *Campbell Pharmaceutical Co. and New York Univ. College of Medicine.* (Pharmacol.)

11:00 **117.** Lipogenesis in adipose tissue of tumor-bearing rats. R. W. BEGG AND J. A. TREW.* *Univ. of Western Ontario.* (Biochem.)

11:15 **118.** Lipid and water levels in the mesentery of tumor-bearing animals. ELDON M. BOYD AND HAROLD E. W. BINHAMMER.* *Queen's Univ.* (Pharmacol.)

Connective Tissue

THURSDAY, 9:00 A.M.—PALMER HOUSE, DINING ROOM 14

Chairman: Karl Meyer

9:00 **119.** Connective tissue as a major sodium reservoir. L. SILVER,* R. W. CHRISTIE* AND L. K. DAHL. *Brookhaven Natl. Lab.* (Pathol.)

9:15 **120.** Biochemical changes in articular cartilage following denervation of the extremity. WAYNE H. AKESON* AND LILLIAN EICHELBERGER. *Univ. of Chicago.* (Biochem.)

9:30 **121.** Collagen biosynthesis. BERNARD S. GOULD AND J. FREDERICK WOESSNER.* *Massachusetts Inst. of Technology.* (Biochem.)

9:45 **122.** Differences between normal and arthritic synovial fluid as indicated by "sialic acid" reagents. WARD PIGMAN, WILLIAM L. HAWKINS,* DAVID PLATT,* HOWARD L. HOLLEY* AND MARY GRACE BLAIR.* *Univ. of Alabama Med. Ctr.* (Biochem.)

10:00 **123.** Urinary excretion of acid mucopolysaccharides by patients with rheumatoid arthritis. NICOLA DI FERRANTE (intr. by D. D. DZIEWIATKOWSKI). *Brookhaven Natl. Lab.* (Biochem.)

10:15 **124.** In vitro cholesterol synthesis in biopsy-connective tissue of the albino rat. NANCY L. NOBLE AND ROBERT J. BOUCEK (intr. by STEPHEN W. GRAY). *Howard Hughes Med. Inst. and Miami Heart Inst.* (Physiol.)

10:30 **125.** Effect of hypophysectomy and growth hormone on turnover of acid mucopolysaccharides in rat skin. SARA SCHILLER AND ALBERT DORFMAN. *LaRabida Jackson Park Sanitarium and Univ. of Chicago.* (Biochem.)

10:45 **126.** Effects of estrogen and relaxin upon physical chemical properties of acetic acid-soluble collagen. HARRY R. ELDEN, RAYMOND J. SEVER, NANCY L. NOBLE AND ROBERT J. BOUCEK (intr. by WILLIAM B. DEICHMANN). *Howard Hughes Med. Inst.* (Pharmacol.)

11:00 **127.** Collagen concentration of human myocardium. DONALD E. OKEN AND ROBERT J. BOUCEK (intr. by RALPH JONES, JR.). *Univ.*

of Miami School of Medicine and Howard Hughes Med. Inst. (Pharmacol.)

11:15 **128.** Rate of collagen formation in rat biopsy-connective tissue. KUNG-YING TANG KAO AND ROBERT J. BOUCEK (intr. by J. L. RADOMSKI). *Howard Hughes Med. Inst.* (Pharmacol.)

11:30 **129.** Use of cystine-S^{35} for determining the rate of wound healing. MARTIN B. WILLIAMSON AND HAROLD B. HALEY.* *Loyola Univ. School of Medicine.* (Biochem.)

11:45 **130.** Effects of hyaluronidase and hyaluronidase inhibitor on fluid absorption from peritoneal cavity. EMIL STEINBERGER (intr. by ESTHER HARDENBERGH). *Naval Med. Research Inst.* (Physiol.)

Registration

Registration Desks are located in the following places:
Conrad Hilton, Lower Lobby
Palmer House, Exhibition Hall

Placement Service

Lower Lobby, Conrad Hilton.

Press Room

Room 500, Fifth Floor, Conrad Hilton.

Thursday Afternoon, April 18, 1:30 p.m.

Acetylcholine–Cholinesterase II

THURSDAY, 1:30 P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: William R. Amberson

1:30 **131.** A spectrophotometric method for assaying anticholinesterase activity. A. A. RUBIN, J. MERSHON, M. E. GRELIS AND I. I. A. TABACHNICK (intr. by W. M. GOVIER). *Schering Corp.* (Pharmacol.)

1:45 **132.** Effect of narcotic analgetics and their antagonists on plasma cholinesterase. FRANCIS F. FOLDES, NORA BAART,* ERVIN G. ERDOS* AND SYDNEY P. SHANOR.* *Mercy Hosp. and Univ. of Pittsburgh.* (Pharmacol.)

2:00 **133.** Activating effect of tryptamine, benzylamine and histamine on plasma cholinesterase. ERVIN G. ERDOS,* FRANCIS F. FOLDES, NORA BAART* AND SYDNEY P. SHANOR.* *Mercy Hosp. and Univ. of Pittsburgh.* (Pharmacol.)

2:15 **134.** Action of some anticholinesterases on electrical and mechanical events in the isolated heart. W. W. BAKER AND J. MCPHILLIPS.* *Jefferson Med. College.* (Pharmacol.)

2:30 **135.** Anticholinesterases affect transmembrane potentials and mechanical activity of rabbit auricles. SEYMOUR KATSH AND JEAN M. MARSHALL. *Carnegie Inst. of Washington and Johns Hopkins School of Medicine.* (Physiol.)

2:45 **136.** Pharmacologic studies on a new series of cholinesterase inhibitors. W. J. FLEMING,* R. J. WULF,* J. P. LONG AND R. M. FEATHERSTONE. *State Univ. of Iowa College of Medicine.* (Pharmacol.)

3:00 **137.** Cholinesterase inhibitors and spontaneous activity of the iliofibularis muscle of the frog. CHARLES P. KRAATZ. *Jefferson Med. College.* (Pharmacol.)

3:15 **138.** Re-evaluation of pharmacological actions of Mytolon. ALEXANDER G. KARCZMAR AND JOHN J. FUDEMA.* *Stritch School of Medicine.* (Pharmacol.)

3:30 **139.** Effects of 2-pyridine aldoxime methiodide on a neuro-myal junction. JOSEPH H. FLEISHER (intr. by STEPHEN KROP). *Army Chem. Ctr.* (Pharmacol.)

3:45 **140.** Pyridine-2-aldoxime methiodide (PAM) as an effective adjunct to atropine in treatment of sarin and tabun poisoning. ROBERT V. BROWN, ANNE M. KUNKEL,* LEA M. SOMERS* AND J. HENRY WILLS. *Army Chem. Ctr.* (Pharmacol.)

Atherosclerosis II

THURSDAY, 1:30 P.M.—CONGRESS, GOLD ROOM

Chairman: Russell L. Holman

1:30 **141.** Natural history of atherosclerosis. RUSSELL L. HOLMAN, HENRY C. MCGILL, JR., JACK P. STRONG,* OSCAR R. GRIFFIN* AND JACK C. GEER.* *Louisiana State Univ. School of Medicine and Charity Hosp. of Louisiana.* (Pathol.)

1:45 **142.** Physiology and clinical management of atherosclerosis and coronary heart disease. BRODA O. BARNES AND ROBERT W. BARNES.* *Denver.* (Physiol.)

2:00 **143.** Nutritive value and harmlessness of hydrogenated fats. R. B. ALFIN-SLATER, A. F. WELLS,* L. AFTERGOOD* AND H. J. DEUEL, JR. *Univ. of Southern California School of Medicine.* (Nutr.)

2:15 **144.** Type of dietary fat and esterification and disappearance of cholesterol-4-C^{14} in the cebus monkey. OSCAR W. PORTMAN AND LEONARDO SINISTERRA (intr. by D. M. HEGSTED). *Harvard School of Public Health.* (Nutr.)

2:30 **145.** Dissimilarity in O_2 consumption of the thoracic and abdominal aorta. R. W. CHRISTIE* AND L. K. DAHL. *Brookhaven Natl. Lab.* (Pathol.)

2:45 **146.** Lipid sequestration on carboxylate exchange resin and arterial elastic tissue. W. H. BATCHELOR (intr. by WALTER BAUER). *Massachusetts General Hosp.* (Physiol.)

3:00 **147.** Correlation between serum total cholesterol and cardiovascular sudanophilia in rats fed cholesterol. S. B. ANDRUS, L. C. FILLIOS,* D. M. HEGSTED* AND O. W. PORTMAN.* *Harvard School of Public Health.* (Pathol.)

3:15 **148.** Role of lipoprotein lipase in the intravascular clearing of fat in human subjects. W. W. CLELAND AND J. M. IACONO (intr. by CARL J. KOEHN). *Army Med. Nutrition Lab.* (Nutr.)

3:30 **149.** Lipemia clearing factor inhibitor

in normal plasma. CHARLOTTE HOLLETT* AND H. C. MENG. *Vanderbilt Univ. Med. School.* (Physiol.)

3:45 **150.** Effect of hepatectomy upon lipid mobilization. ALEX KAPLAN AND STAFFORD JACQUES.* *Michael Reese Hosp.* (Physiol.)

Blood Clotting II

THURSDAY, 1:30 P.M.—SHERATON-BLACKSTONE, MAYFAIR ROOM

Chairman: L. M. Tocantins

1:30 **151.** Warfarin-induced deficiency of PTC in rats and its correction with vitamin K. THEODORE H. SPAET AND MONA L. KROPATKIN.* *Montefiore Hosp.* (Physiol.)

1:45 **152.** Efficacy of water-soluble vitamin K_1 in counteracting drug-induced hypoprothrombinemia. KANE L. KELLEY,* CHARLES W. MUSHETT AND RALPH F. HIRSCHMANN.* *Merck Sharp & Dohme Research Labs.* (Pathol.)

2:00 **153.** Heparin, a biologic ion exchanger in protection vs. noxious agents. R. D. HIGGINBOTHAM* AND THOMAS F. DOUGHERTY. *Univ. of Utah College of Medicine.* (Physiol.)

2:15 **154.** Prothrombin and its derivatives in relation to anticoagulant therapy. SHIRLEY A. JOHNSON. *Henry Ford Hosp.* (Physiol.)

2:30 **155.** Effect of stress and Dicumarol on prothrombin time of rats. L. M. FISHER,* G. J. MOGENSON* AND L. B. JAQUES. *Univ. of Saskatchewan.* (Pharmacol.)

2:45 **156.** Generation of prothrombin activity with mitochondria or with cathepsin. MARION I. BARNHART (intr. by ERNEST D. GARDNER). *Wayne State Univ.* (Physiol.)

3:00 **157.** Congenital hypoprothrombinemia vera studied by the one- and two-stage prothrombin procedures. ARMAND J. QUICK AND CLARA V. HUSSEY.* *Marquette Univ. School of Medicine.* (Biochem.)

3:15 **158.** Thrombin formation from prothrombin, proconvertin and citrate. BENJAMIN ALEXANDER, ROBERT GOLDSTEIN* AND GABRIEL IZAK.* *Beth Israel Hosp. and Harvard Univ.* (Biochem.)

3:30 **159.** Sphingosine and inhibition of conversion of prothrombin to thrombin with threone or thromboplastin. WALTER H. SEEGERS, RICARDO H. LANDABURU* AND E. HECHT.* *Wayne State Univ. College of Medicine.* (Physiol.)

3:45 **160.** Chemistry of a physiological inhibitor of blood clotting. E. HECHT (intr. by WALTER H. SEEGERS). *State Univ., Utrecht* (Biochem.)

Tumors VI

THURSDAY, 1:30 P.M.—SHERATON-BLACKSTONE, HUBBARD ROOM

Chairman: Harold P. Morris

1:30 **161.** Effect of some antineoplastic agents on several respiratory enzyme systems of normal and tumor tissues. I. M. FRASER, R. A. HARVEY AND M. G. HARDINGE (intr. by C. M. GRUBER). *College of Med. Evangelists.* (Pharmacol.)

1:45 **162.** Sensitivity of succinoxidase of hepatoma 134 and of mouse liver to malonate. JEROME T. FISHGOLD (intr. by WINDSOR C. CUTTING). *Stanford Univ. Med. School.* (Pharmacol.)

2:00 **163.** Citrate accumulation in slices of neoplastic tissues. HARRIS BUSCH, JOSEPH R. DAVIS* AND ESTHER W. OLLE.* *Univ. of Illinois College of Medicine.* (Biochem.)

2:15 **164.** Effect of desoxycorticosterone trimethylacetate (DCT) on liver succinoxidase activity in rats fed 3′-methyl-4-dimethylaminoazobenzene. JOHN P. DAVANZO* AND W. J. EVERSOLE. *Univ. of New Mexico.* (Physiol.)

2:30 **165.** Cytochrome oxidase in the liver of the rat bearing Walker carcinoma 256. ALICE ANDREWS GREENE* AND FRANCES L. HAVEN. *Univ. of Rochester.* (Biochem.)

2:45 **166.** Catalase inhibition by normal and neoplastic tissue extracts. NICHOLAS ALEXANDER (intr. by AARON B. LERNER). *VA Hosp., West Haven, and Yale Univ.* (Biochem.)

3:00 **167.** Phosphate metabolism of Ehrlich's ascites carcinoma cells. KENNETH IBSEN* AND RALPH W. MCKEE. *Univ. of California Med. Ctr.* (Biochem.)

3:15 **168.** In vitro effects of adrenocortical steroids on transamination and oxidation by cell suspensions of rat thymus and lymphosarcoma. MELVIN BLECHER* AND ABRAHAM WHITE. *Albert Einstein College of Medicine.* (Biochem.)

3:30 **169.** Transamination reactions in mammalian tissue culture cells. S. BARBAN (intr. by M. SILVERMAN). *Natl. Insts. of Health.* (Biochem.)

3:45 **170.** Inhibition of d-amino acid oxidase by tumor extracts. D. V. N. REDDY (intr. by C. V. WINDER). *Columbia Univ. and Francis Delafield Hosp.* (Physiol.)

4:00 **171.** C^{14} lysine incorporation into

Bence Jones protein by cultures of myeloma bone marrow. FRANZ MEYER (intr. by LLOYD M. KOZLOFF). *Univ. of Chicago.* (Biochem.)

4:15 **172.** In vitro synthesis of cysteine from serine and of lactic acid from cysteine and serine by tumor or liver tissue of tumor-bearing mice. JAKOB A. STEKOL, SIDNEY WEISS AND ETHEL I. ANDERSON.* *Lankenau Hosp. Research Inst. and Inst. for Cancer Research.* (Biochem.)

4:30 **173.** Ethionine as an antimetabolite for methionine and choline. W. D. SALMON AND D. H. COPELAND.* *Alabama Polytechnic Inst.* (Nutr.)

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton
Exhibit Manager's Office, Exhibition Hall, Conrad Hilton

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 505, Conrad Hilton, where owners may claim them on proper identification.

Friday Morning, April 19, 9:00 a.m.

Atherosclerosis III

FRIDAY, 9:00 A.M.—CONGRESS, GOLD ROOM

Chairman: George V. Mann

9:00 **174.** Metabolic studies with heterologous low-density lipoproteins. JUDY A. SPITZER* AND JOHN J. SPITZER. *New York State Dept. of Health.* (Physiol.)

9:15 **175.** Effects of cholesterol, cholic acid, and EFA deficiency upon adult male rats. ERIK AAES-JØRGENSEN* AND RALPH T. HOLMAN. *Univ. of Minnesota.* (Biochem.)

9:30 **176.** Importance of liver in hyperphospholipidemia in cockerels. R. E. RANNEY AND SALLY E. WEISS.* *G. D. Searle and Co.* (Physiol.)

9:45 **177.** Nicotine effects on normal and atherosclerotic rabbit hearts. JANET TRAVELL, DOROTHY KARP AND SEYMOUR H. RINZLER. *Cornell Univ. Med. College.* (Pharmacol.)

10:00 **178.** Toxic effects of high levels of delta-4-cholestenone in the diet. DANIEL STEINBERG, DONALD S. FREDRICKSON* AND GRANT W. LIDDLE.* *Natl. Heart Inst.* (Biochem.)

10:15 **179.** High speed centrifugation and distribution of serum cholesterol. J. C. FORBES; C. O. WATLINGTON,* A. J. WASSERMAN* AND P. D. CAMP.* *Med. College of Virginia.* (Biochem.)

10:30 **180.** Influence of coprostanol formation on cholesterol absorption. W. W. WELLS (intr. by A. E. AXELROD). *Univ. of Pittsburgh School of Medicine.* (Nutr.)

10:45 **181.** Hypocholesterolizing effect of exercise on cholesterol-fed cockerels. HARRY Y. C. WONG, MERTON B. ANDERSON,* JOHN K. KIM,* DAVID J. LIU* AND EDWARD W. HAWTHORNE. *Howard Univ. College of Medicine.* (Physiol.)

11:00 **182.** Sex and incipient atherosclerosis in rats. LOUIS C. FILLIOS* AND STEPHEN B. ANDRUS. *Harvard School of Public Health.* (Pathol.)

Blood Clotting III

FRIDAY, 9:00 A.M.—SHERATON-BLACKSTONE, MAYFAIR ROOM

Chairman: John H. Ferguson

9:00 **183.** Quantitative interrelationships between thromboplastin, proconvertin-convertin, and calcium in prothrombin conversion to thrombin. ROBERT GOLDSTEIN, GABRIEL IZAK AND ESTELLE ZONDERMAN (intr. by A. S. FREEDBERG). *Beth Israel Hosp. and Harvard Univ.* (Physiol.)

9:15 **184.** Influence of thrombin on rate of prothrombin conversion. JOHN L. GRAY,* DONALD G. THERRIAULT* AND H. JENSEN. *U.S. Army Med. Research Lab.* (Biochem.)

9:30 **185.** Some properties of purified preparations of platelet cofactor I (antihemophilic factor). RICHARD L. FENICHEL (intr. by F. MORIN). *Wayne State Univ. College of Medicine.* (Physiol.)

9:45 **186.** Antihemophilic factor (AHF): its inactivation in relation to thrombin evolution. GEORGE D. PENICK. *Univ. of North Carolina.* (Pathol.)

10:00 **187.** Parenteral administration of antihemophilic factor (AHF) preparations in the dog. R. H. WAGNER,* R. D. LANGDELL,* B. A. RICHARDSON,* R. A. FARRELL* AND K. M. BRINKHOUS. *Univ. of North Carolina.* (Pathol.)

10:15 **188.** Purification of fibrinogen. SIDNEY SHULMAN AND BARBARA BLAIR.* *Univ. of Buffalo School of Medicine.* (Biochem.)

10:30 **189.** Reaction of iodinated fibrinogen with thrombin. ELEMER MIHALYI. *Natl. Heart Inst.* (Biochem.)

10:45 **190.** Preparation and activation of human plasminogen. J. T. SGOURIS, K. B. MCCALL AND J. K. INMAN (intr. by C. W. MUEHLBERGER). *Michigan Dept. of Health.* (Pharmacol.)

11:00 **191.** Inhibition by chloride ion of activation of bovine plasminogen (profibrinolysin). ARTHUR DALBY* AND EDWIN T. MERTZ. *Purdue Univ.* (Biochem.)

Friday Afternoon, April 19, 1:00 p.m.

Atherosclerosis IV

FRIDAY, 1:00 P.M.—CONGRESS, GOLD ROOM

Chairman: Robert W. Wissler

1:00 **192.** Effect of vanadyl sulfate on plasma and tissue cholesterol levels and atherosclerosis in the chicken. CHARLES H. EADES, JR. AND DUANE G. GALLO (intr. by HOMER E. STAVELY). *Mead Johnson Research Labs.* (Biochem.)

1:15 **193.** Influence of cobaltous chloride on aortic atheromatosis and plasma lipid pattern in cholesterol-fed chickens. DAVID M. TENNENT,* CHARLES W. MUSHETT, GUNTHER W. KURON,* WALTHER H. OTT AND HENRY SIEGEL.* *Merck Inst. for Therapeutic Research and Albert Einstein College of Medicine.* (Nutr.)

1:30 **194.** Influence of dietary magnesium on cardiac and renal lesions of weanling rats fed an atherogenic diet. EARL E. HELLERSTEIN,* J. J. VITALE* AND N. ZAMCHECK. *Harvard and Boston Univs., and Boston City Hosp.* (Pathol.)

1:45 **195.** Effects of various fats on cholesterolemia and atherogenesis in cholesterol-fed cockerels. J. STAMLER, R. PICK AND L. N. KATZ. *Michael Reese Hosp.* (Physiol.)

2:00 **196.** Influence of specific fatty acids on development of atherosclerosis in miniature pigs. JAMES J. PEIFER* AND WALTER O. LUNDBERG. *Univ. of Minnesota.* (Biochem.)

2:15 **197.** Atherosclerosis in monkeys with moderate hypercholesterolemia induced by dietary cholesterol. C. BRUCE TAYLOR, L. G. NELSON-COX,* B. J. HALL-TAYLOR* AND G. E. COX.* *Presbyterian-St. Luke's Hosp., Chicago.* (Pathol.)

2:30 **198.** Effects of ethionine and high fat diets, with and without choline supplementation on production of aortic sclerosis in rats. JEROME KLEINERMAN, J. V. KLAVINS,* N. KOBAYASHI* AND R. MARSTERS.* *Western Reserve Univ. School of Medicine.* (Pathol.)

2:45 **199.** Effects of high protein-high vitamin supplements on cholesterolemia and atherogenesis in cholesterol-fed cockerels. R. PICK, J. STAMLER AND L. N. KATZ. *Michael Reese Hosp.* (Physiol.)

3:00 **200.** Arteriosclerosis in pyridoxine-deficient monkeys and dogs. CHARLES W. MUSHETT AND GLADYS A. EMERSON. *Merck Inst. for Therapeutic Research.* (Pathol.)

3:15 **201.** Effect of desoxycorticosterone + NaCl-induced hypertension on dietary atherosclerosis and dietary hyperlipemia in the rat. QUENTIN B. DEMING,* ERWIN MOSBACH,* MARGARET BEVANS, LIESE ABELL,* EUGENE MARTIN,* LILI BRUN* AND EVELYN HALPERN.* *Columbia Univ. and Goldwater Memorial Hosp.* (Pathol.)

3:30 **202.** Calcified atheromatosis in the rat. GEORGE F. WILGRAM (intr. by C. C. LUCAS). *Univ. of Toronto.* (Biochem.)

Blood Clotting IV

FRIDAY, 1:00 P.M.—SHERATON-BLACKSTONE, MAYFAIR ROOM

Chairman: K. M. Brinkhous

1:00 **203.** Effect of combined treatment with plasmin (fibrinolysin) and heparin on lysis of clots in various stages of organization. N. BACK,* J. L. AMBRUS AND IRVING B. MINK.* *Roswell Park Memorial Inst. and Univ. of Buffalo.* (Pharmacol.)

1:15 **204.** Simple test tube method for production of all-human fibrinolytic material. KURT N. VON KAULLA AND CHARLES TAYLOR (intr. by WILLIAM B. DRAPER). *Univ. of Colorado School of Medicine and Belle Bonfils Mem. Blood Bank.* (Pharmacol.)

1:30 **205.** Evidence for adsorption and protection of urokinase by washed human erythrocytes. S. N. KOLMEN, M. M. GUEST AND D. R. CELANDER (intr. by ANDREW A. ORMSBY). *Univ. of Texas Med. Branch.* (Biochem.)

1:45 **206.** Platelet viscous metamorphosis and clot retraction. MARJORIE B. ZUCKER AND JENNIE BORELLI.* *Sloan-Kettering Inst.* (Physiol.)

2:00 **207.** Effect of clot retraction on electrical resistance. GEORGE W. MOLNAR. *U. S. Army Med. Research Lab.* (Physiol.)

2:15 **208.** Human amniotic fluid: a source of clotting and fibrinolytic agents. LEO GAGLIARDI* AND MARIO STEFANINI. *St. Elizabeth's Hosp. and Tufts Univ. School of Medicine.* (Physiol.)

2:30 **209.** Coagulation components following intravenous estrogens. J. FREDERIC JOHNSON (intr. by F. GAYNOR EVANS). *Wayne State Univ.* (Physiol.)

2:45 **210.** Anticoagulant activity of fucoidin. HAROLD A. WURZEL* AND GEORG F. SPRINGER. *Univ. of Pennsylvania.* (Immunol.)

3:00 **211.** Combined effect of dextran and anticoagulants in the normal dog. SOL M. MICHAELSON* AND JOE W. HOWLAND. *Univ. of Rochester.* (Pathol.)

3:15 **212.** Lipogenic hypercoagulability of blood. EMANUEL E. MANDEL AND PHILIPPE FRANÇOIS (intr. by W. B. WARTMAN). *Chicago Med. School, Northwestern Univ., and Mount Sinai Hosp.* (Pathol.)

THE AMERICAN PHYSIOLOGICAL SOCIETY

Seventy-eighth Meeting

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 15, 1:30 p.m.

ECG

MONDAY, 1:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Otto Schmitt

1:30 **213.** Effect of potassium and calcium deficiency on monophasic action potential of isolated, perfused rabbit heart. E. LEPESCHKIN, B. SURAWIZ,* H. HERRLICH* AND B. F. HOFFMAN. *Univ. of Vermont and State Univ. of New York.*

1:45 **214.** Pseudobigeminy induced by KCl in adrenalectomized DCA-treated rat. SHEPPARD M. WALKER AND AVA WOLF.* *Univ. of Louisville.*

2:00 **215.** Defibrillatory effects of low sodium solutions on ventricular fibrillation in rabbit's isolated heart. L. GRUMBACH (intr. by A. M. LANDS). *Sterling-Winthrop Research Inst.*

2:15 **216.** Effective frontal plane vectorcardiograms of Rana pipiens. DANIEL A. BRODY AND RALPH F. MORTON.* *Univ. of Tennessee.*

2:30 **217.** Effect of respiration on the spatial vectorcardiogram. ERNST SIMONSON, OTTO H. SCHMITT AND K. NAKAGAWA.* *Univ. of Minnesota.*

2:45 **218.** Comparison of monophasic action potentials recorded by intracellular and suction electrodes. P. F. CRANEFIELD, B. F. HOFFMAN, E. LEPESCHKIN, B. SURAWICZ* AND H. HERRLICH.* *State Univ. of New York and Univ. of Vermont.*

3:00 **219.** Effects of low temperatures on transmembrane potentials in isolated auricles of rabbits. JEAN M. MARSHALL. *Johns Hopkins School of Medicine.*

3:15 **220.** Refractoriness of cardiac muscle. B. F. HOFFMAN AND P. F. CRANEFIELD. *State Univ. of New York.*

3:30 **221.** Effect of Cedilanid upon excitability of intact dog atrium. L. H. NAHUM AND DEAN ASHWORTH. *Yale Univ. School of Medicine.*

3:45 **222.** Correlations between action potential and contractile tension of frog ventricle. ALLAN J. BRADY (intr. by J. WALTER WOODBURY). *Univ. of Washington School of Medicine.*

4:00 **223.** Average resistivity of the human body in vicinity of the heart. OTTO H. SCHMITT. *Univ. of Minnesota.*

Respiration Mechanics

MONDAY, 1:30 P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Hermann Rahn

1:30 **224.** Problems associated with a magnetic tape recording system. EDWARD P. RADFORD, JR., PAUL E. SMITH, JR.* AND LUCIEN BROUHA. *Haskell Lab. for Toxicology and Industrial Medicine.*

1:45 **225.** Bulbar control of respiratory muscles. E. M. GRIM*, B. A. LAWING* AND

L. M. N. BACH. *Tulane Univ. School of Medicine.*

2:00 **226.** Vectorelectromyographic study of intercostal muscles in human respiration. JOHN E. PAULY*, DAVID S. JONES*, ALLAN JARACH* AND J. E. P. TOMAN. *Chicago Med. School and Stritch School of Medicine.*

2:15 **227.** Evidence for dynamic pulmonary stretch receptors. JOHN L. CHAPIN (intr. by CLARENCE A. MAASKE). *Univ. of Colorado Med. Ctr.*

2:30 **228.** Effect of cervical vagotomy on respiratory flow patterns. THOMAS P. K. LIM* AND FRED S. GRODINS. *Lovelace Fndn. and Northwestern Univ. Med. School.*

2:45 **229.** Pulmonary mechanics during induced pulmonary edema in anesthetized dogs. C. D. COOK*, G. SCHREINER* AND J. MEAD. *Harvard School of Public Health.*

3:00 **230.** Elevation gradient of intrathoracic pressure. JOHN L. PATTERSON, JR., JOHN J. KRUEGER* AND THOMAS H. BAIN*. *Med. College of Virginia.*

3:15 **231.** Static volume-pressure characteristics of excised lobes of dog's lungs. N. R. FRANK (intr. by J. L. WHITTENBERGER). *Harvard School of Public Health.*

3:30 **232.** Pressure-volume measurements on dog bronchi. H. B. MARTIN* AND D. F. PROCTOR. *Johns Hopkins Univ.*

3:45 **233.** Responses of anesthetized dogs mechanically ventilated at high frequencies. WAYLAND E. HULL. *Duke Univ. School of Medicine.*

Blood Volume, Cerebral Circulation

MONDAY, 1:30 P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: David F. Opdyke

1:30 **234.** Estimation of central blood volume using constant infusion techniques. EDWARD W. HAWTHORNE, MARY GASPAR*, RUSSELL MINTON, JR.*, SHERIDAN L. C. PERRY*, WILLIAM G. POGUE* AND HERMAN BRANSON*. *Howard Univ.*

1:45 **235.** Depression of central blood volume and cardiac output during positive pressure breathing; re-elevation by Aramine. E. BRAUNWALD, W. L. MORGAN, JR.,* J. T. BINION* AND S. J. SARNOFF. *Natl. Heart Inst.*

2:00 **236.** Prediction of blood volume in healthy men. E. BROWN, J. L. HODGES, JR.,* R. WENNESLAND*, J. HOPPER, JR.,* K. G. SCOTT*, I. N. TUCKER*, O. GUTTENTAG* AND B. BRADLEY.* *Univ. of California.*

2:15 **237.** Plasma volume changes with increased abdominal pressure. E. T. JACH* AND J. P. MARBARGER. *Univ. of Illinois.*

2:30 **238.** Changes in cell and plasma volumes produced by hemorrhage and reinfusion. STEPHANIE DEAVERS,* R. A. HUGGINS, E. L. SMITH AND R. C. OVERTON.* *Baylor Univ. College of Medicine and Univ. of Texas.*

2:45 **239.** Simultaneous measurement of plasma volume in man with T-1824 and an improved I^{131}-albumin method. J. J. FRANKS AND F. ZIZZA (intr. by J. H. HOLMES). *Univ. of Colorado School of Medicine.*

3:00 **240.** Erroneous measurement of plasma volume by T-1824 in the rabbit. F. ZIZZA AND E. B. REEVE (intr. by COSMO G. MACKENZIE). *Univ. of Colorado School of Medicine.*

3:15 **241.** Asphyxial volume changes of cortical cells and fibers. A. VAN HARREVELD. *California Inst. of Technology.*

3:30 **242.** Effect of carbonic anhydrase inhibition on cerebral circulation of the anesthetized dog. JOHN C. MITHOEFER, PAUL W. MAYER AND JOSEPH F. STOCKS (intr. by JAMES BORDLEY III). *Mary Imogene Bassett Hosp.*

3:45 **243** Filtration coefficient of capillaries of the central nervous system. N A. COULTER, JR. (intr. by R. W. STACY). *Ohio State Univ.*

4:00 **244.** Effects of low oxygen and high carbon dioxide concentrations in inspired air on local cerebral circulation in the cat. DOUGLAS B. HANSEN, MARY R. SULTZER, WALTER H. FREYGANG AND LOUIS SOKOLOFF (intr. by SEYMOUR S. KETY). *Natl. Inst. of Mental Health.*

Hypothalamus

MONDAY, 1:30 P.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: Evelyn Anderson

1:30 **245.** Thyroxine insensitivity following hypothalamic lesions in rats. ESTELLE R. RAMEY AND MAURICE S. GOLDSTEIN. *Georgetown Univ. School of Medicine and Univ. of Chicago.*

1:45 **246.** Direct action of triiodothyronine on pituitary TSH secretion in hypothalamic lesioned rats. SAVINO A. D'ANGELO AND RONALD E. TRAUM.* *Jefferson Med. College.*

2:00 **247.** Atropine blockade of electrically induced hypothalamic activation of the rabbit adenohypophysis. GILBERT D. SAUL* AND CHARLES H. SAWYER. *Univ. of California at Los Angeles and VA Hosp., Long Beach.*

2:15 **248.** Reaction to hot and cold noxious stimuli in normal dogs and dogs with hypothalamic lesions. D. MURGATROYD, H. T HAMMEL, H. SHARMA, AND JAMES DANIEL HARDY (intr. by E. F. DUBOIS). *Univ. of Pennsylvania Med. School.*

2:30 **249.** Occurrence of gastrointestinal lesions in behaviorally conditioned and intracerebral self-stimulated monkeys. R. W. PORTER, J. V. BRADY, D. G. CONRAD AND J. W. MASON (intr. by D. McK. RIOCH). *Walter Reed Army Inst. of Research.*

2:45 **250.** Relations of drive and reward systems in the hypothalamus. RICHARD WENDT AND JAMES OLDS (intr. by D. B. LINDSLEY). *Univ. of California at Los Angeles and VA Hosp.*

3:00 **251.** Adipsia as a primary effect of lateral hypothalamic lesions in rats. S. D. MORRISON* AND J. MAYER. *Harvard School of Public Health.*

3:15 **252.** Hypothalamic responses during and following anemic decerebration in the cat. LEROY L. COSTANTIN AND S. C. WANG (intr. by W. L. NASTUK). *Columbia Univ.*

3:30 **253.** Avoidance and approach learning motivated by stimulation of identical hypothalamic loci. GEORGE W. BROWN AND BERTRAM D. COHEN.* *VA Hosp., Iowa City.*

3:45 **254.** Intradiencephalic injections of saline solutions. RUSSELL D. SQUIRES AND NELLIE R. HARRIS (intr. by JOHN R. BROBECK). *Univ. of Pennsylvania School of Medicine.*

Peripheral Nerve

MONDAY, 1:30 P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Ernst Fischer

1:30 **255.** Effects of sulfhydryl blockade on axonal function. H. MILLARD SMITH (intr. by N. R. BREWER). *Univ. of Chicago.*

1:45 **256.** Action of certain enzymes on the frog node of Ranvier. PHILLIP G. NELSON (intr. by N. KLEITMAN). *Univ. of Chicago.*

2:00 **257.** Structural changes in axons exposed to enzymes while still functioning. JULIAN M. TOBIAS. *Univ. of Chicago.*

2:15 **258.** Effect of electrolytes on excitability and electrical properties of single nerve fiber of frog. SABURO HASHIMURA* AND ERNEST B. WRIGHT. *Univ. of Rochester.*

2:30 **259.** Fixed charge hypothesis for a key mechanism in change of Na-K-permeability during excitation. GILBERT LING. *Eastern Pennsylvania Psychiatric Inst. and Univ. of Illinois.*

2:45 **260.** Potassium fluxes in myelinated nerve. F. P. J. DIECKE (intr. by S. R. BRUESCH). *Univ. of Tennessee.*

3:00 **261.** Considerations about electrotonic spread derived from computed effects of biological waveforms. W. H. FREYGANG, JR. AND H. WIENER.* *Natl. Insts. of Health.*

3:15 **262.** Calculation of conduction velocity of myelinated nerve fiber from its electric constants. F. T. DUN. *Kirksville College of Osteopathy and Surgery.*

3:30 **263.** Possible quantal nature of subthreshold responses at single nodes of Ranvier. J. DEL CASTILLO* AND E. E. SUCKLING. *State Univ. of New York, Downstate Med. Ctr.*

3:45 **264.** Metabolism of immature nerve fibers in the developing chick. F. G. CARPENTER. *Cornell Univ. Med. College.*

Thyroid, Parathyroid

MONDAY, 1:30 P.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: S. B. Barker

1:30 **265.** Hypermetabolism of rats following ingestion of 3,3,5-triiodothyronine in drinking water. CHALMERS L. GEMMILL. *Univ. of Virginia.* (Pharmacol.)

1:45 **266.** Thyroxine maintenance of incubated kidney slice metabolism. S. B. BARKER AND R. H. LINDSAY.* *Univ. of Alabama Med. Ctr.*

2:00 **267.** Failure of Dibenzyline to block some peripheral effects of thyroxine. G. E. HAMMOND,* G. A. GRONERT* AND N. B. SCHWARTZ. *Univ. of Illinois College of Medicine.*

2:15 **268.** Effect of rising environmental temperature on thyroid I^{131} activity. H. D. JOHNSON, C. S. CHENG AND SAMUEL BRODY[1] (intr. by H. E. DALE). *College of Agriculture, Univ. of Missouri.*

2:30 **269.** Initial effects of cold exposure upon uptake and release of thyroidal I^{131} in hamsters. KARL M. KNIGGE AND ROBERT S. GOODMAN (intr. by J. D. GREEN). *Univ. of California at Los Angeles.*

2:45 **270.** Relation of thyroid activity to increased metabolism induced by fat deficiency. D. M. MORRIS,* T. C. PANOS,* J. C. FINERTY, R. L. WALL* AND G. F. KLEIN.* *North Texas State College, Univ. of Texas Med. Branch and Univ. of Miami School of Medicine.*

[1] Deceased Aug. 6, 1956.

3:00 **271.** Endocrine and lipid aspects of experimental atherosclerosis in dogs. S. ROSENFELD,* J. MARMORSTON, H. SOBEL,* J. MEHL, J. LEWIS* AND A. WHITE.* *Cedars of Lebanon Hosp. and Univ. of Southern California.* (Immunol.)

3:15 **272.** Ovarian lactic acid in normal and hypothyroid rats following gonadotrophin administration. J. R. GRESLIN AND J. H. LEATHEM. *Rutgers Univ.*

3:30 **273.** Absorption of radioactive iodine labeled serum albumin from the knee joint space in treated and untreated arthritis. W. E. MARTINDALE, W. L. HAWLEY AND H. L. HOLLEY (intr. by W. J. WINGO). *VA Hosp., Birmingham, and Univ. of Alabama Med. College.* (Biochem.)

3:45 **274.** Parathyroid influence on calcium ion equilibration between bone and extracellular fluid. ROY V. TALMAGE, J. R. ELLIOTT,* R. DAVIS* AND A. C. ENDERS.* *Rice Inst.*

Ticket Sales

Tickets for society dinners, special scientific dinner meetings, group luncheons and breakfasts, and other informal functions will be on sale in the Lower Lobby of the Conrad Hilton.

Registration

Registration Desks are located in the following places:
Conrad Hilton, Lower Lobby
Palmer House, Exhibition Hall

Tuesday Morning, April 16, 9:00 a.m.

Cardiac Work, Metabolism

TUESDAY, 9:00 A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Ancel Keys

9:00 **275.** Norepinephrine: effects on left ventricular work, oxygen consumption, sodium and potassium exchange. J. E. SCHMITT-HENNER,* I. FORTE,* T. SHAKASHIR,* CECILIA RIEGELZ AND J. H. HAFKENSCHIEL. *Lankenau Hosp.*

9:15 **276.** Oxygen consumption of the heart. S. J. SARNOFF, E. BRAUNWALD, R. B. CASE,* W. N. STAINSBY,* G. H. WELCH, JR.* AND R. MACRUZ.* *Natl. Heart Inst.*

9:30 **277.** Quantitated experimental aortic regurgitation and effect of mitral regurgitation. G. H. WELCH, JR., E. BRAUNWALD AND S. J. SARNOFF (intr. by A. J. DERBYSHIRE). *Natl. Heart Inst.*

9:45 **278.** Cardiac depressor effects of CO_2 in the intact dog and heart-lung preparation. G. G. NAHAS AND H. MEAD CAVERT (intr. by GEORGE FAHR). *Univ. of Minnesota.*

10:00 **279.** Reversal by cardioactive agents of CO_2-induced failure of the heart-lung preparation. H. MEAD CAVERT AND G. G. NAHAS.* *Univ. of Minnesota.*

10:15 **280.** Metabolic changes in failing heart-lung preparations. JOSEPH G. STRAWITZ, WOO CHOO LEE AND HELEN HIFT (intr. by QUILLIAN R. MURPHY). *Univ. of Wisconsin Med. School.*

10:30 **281.** Work of isolated mammalian left ventricle. N. M. BUCKLEY and M. ZEIG (intr. by H. D. LAUSON). *Albert Einstein College of Medicine.*

10:45 **282.** Oxygen uptake of the non-working ventricle. WILLIAM P. MCKEEVER,* PHILIP C. CANNEY* AND DONALD E. GREGG. *Walter Reed Army Med. Ctr.*

11:00 **283.** Anoxic tolerance of the heart during perfusion at various temperatures. FRANK GOLLAN AND INNES A. NELSON.* *Thayer VA Hosp. and Vanderbilt Univ. School of Medicine.*

11:15 **284.** Oxidation of unsaturated fats as the source of the electric power of the cardiac pacemaker. GEORGE E. PRICE* AND R. H. BEUTNER. *Des Moines Still College.*

11:30 **285.** Constant mass low frequency ballistocardiography. JAN NYBOER AND LUCAS VAN ORDEN.* *Harper Hosp.*

Renal Tubule

TUESDAY, 9:00 A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: John K. Clark

9:00 **286.** Diffusion of CO_2 across the renal tubule. JOHN T. KAIM,* GASPAR CARRASQUER,* ROBERT SHAPIRO* AND WILLIAM A. BRODSKY. *Univ. of Louisville School of Medicine.*

9:15 **287.** In vitro studies on an isolated renal tubule (flounder) and on thin slices of renal cortex (rabbit). JOHN H. COPENHAVER,* S. K. HONG* AND R. P. FORSTER. *Dartmouth College, Univ. of Buffalo and Mt. Desert Island Biological Lab.*

9:30 **288.** Determinants of renal tubular transport: urates and barbiturates. AGAMEMNON DESPOPOULOS (intr. by WILLIE W. SMITH). *Natl. Heart Inst.*

9:45 **289.** Characterization of renal tubular transport of glucose. W. ROWLAND TAYLOR,* MARY F. NOLAN,* CLAIRE L. LEE,* THEODORE ENNS* AND FRANCIS P. CHINARD. *Johns Hopkins Med. School and Baltimore City Hosps.* (Biochem.)

10:00 **290.** Effect of thiosulfate on renal tubular transport of sulfate in the dog and in the aglomerular goosefish. FREDRIK BERGLUND AND ROY P. FORSTER (intr. by WILLIAM H. FORBES). *Boston Univ. and Dartmouth College.*

10:15 **291.** Renal tubular reabsorption and secretion of diodrast in Necturus. WILLIAM B. KINTER (intr. by J. R. PAPPENHEIMER). *Harvard Med. School.*

10:30 **292.** In vivo perfusion of proximal tubule of Necturus kidney. A. K. SOLOMON, IRWIN B. HANENSON,* JOSEPH C. SHIPP,* ERICH E. WINDHAGER* AND HANS J. SCHATZMANN.* *Harvard Med. School.*

10:45 **293.** Total and partial gas tensions of human urine. SUK KI HONG* AND HERMANN RAHN. *Univ. of Buffalo School of Medicine.*

11:00 **294.** Effect of parathyroid extract on renal excretion of phosphate in the chicken. DOUGLAS G. DAVIDSON AND NORMAN LEVINSKY (intr. by ROBERT W. BERLINER). *Natl. Heart Inst.*

Pulmonary Diffusion, Hypoxia, Emphysema

TUESDAY, 9:00 A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Arthur B. DuBois

9:00 **295.** A simple test for assay of pulmonary diffusion impairment. LOUIS J. PECORA. *Public Health Service, Cincinnati.*

9:15 **296.** Diffusing capacity and area of alveolar capillary bed. A. A. SIEBENS, N. R. FRANK,* R. A. RAUF* AND LOUISE RAY.* *State Univ. of New York, Downstate Med. Ctr. and St. Albans Naval Hosp.*

9:30 **297.** Determination of pulmonary diffusing capacity from carbon monoxide equilibration curves. PAUL V. HARPER, BENJAMIN BURROWS AND FRANCES DIETIKER (intr. by J. GARROTT ALLEN). *Univ. of Chicago.*

9:45 **298.** Influence of inspired O_2 tension on pulmonary diffusing capacity for CO. G. M. TURINO,* M. BRANDFONBRENER,* R. M. GOLDRING* AND A. P. FISHMAN. *Columbia Univ.*

10:00 **299.** Effect of anemia on pulmonary diffusing capacity. J. RANKIN,* R. S. MCNEILL,* AND R. E. FORSTER. *Univ. of Pennsylvania Grad. School of Medicine.*

10:15 **300.** Neurological sequelae of experimental anoxia in newborn dogs. S. CASSIN AND A. R. FREGLY (intr. by G. R. SEAMAN). *Univ. of Texas Med. School.*

10:30 **301.** Respiratory responses to acute changes in O_2 and CO_2 during acclimatization to high altitude. R. H. KELLOGG, B. E. VAUGHAN* AND D. W. BADGER.* *Univ. of California, and White Mountain Research Station.*

10:45 **302.** Effect of acetazoleamide (Diamox) and ammonium chloride on acid-base balance in pulmonary emphysema. ANTHONY J. BARAK AND HERBERT P. JACOBI (intr. by ARTHUR L. BENNETT). *VA Hosp., Omaha, and Univ. of Nebraska.*

11:00 **303.** Effects of aminophylline and Diamox on oxygen-induced respiratory depression in pulmonary emphysema. MORTON GALDSTON AND VINCENT W. HOLLIS, JR.* *Goldwater Mem. Hosp.*

Brain Metabolism

TUESDAY, 9:00 A.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: Harold E. Himwich

9:00 **304.** Chemical changes in structural components of brain cortex during stimulation. ALEXANDER GEIGER, ISHIRO YAMASAKI AND LIANA NEBEL (intr. by F. A. GIBBS). *Univ. of Illinois.*

9:15 **305.** Environmentally induced changes in cerebral oxygen availability. N. B. FURLONG AND M. J. SCHWARZ (intr. by J. W. HEIM). *Wright-Patterson AFB.*

9:30 **306.** Effect of hypoxia and ischemia on cortical, thalamic and midbrain reticular neurons. VAHE E. AMASSIAN. *Randolph AFB.*

9:45 **307.** Chronically implanted polarograph electrodes. LELAND C. CLARK, JR. AND GEORGE MISRAHY.* *Antioch College and Wright-Patterson AFB.*

10:00 **308.** Changes in protein configuration, protease activity and SH groups in stimulated rat brain. G. UNGAR, D. V. ROMANO* AND E. ASCHHEIM.* *U. S. Vitamin Corp.*

10:15 **309.** Insulin coma and hemato-encephalic exchange. WILLIAMINA A. HIMWICH. *Galesburg State Research Hosp.*

10:30 **310.** Cerebral metabolism of butyrate-1-C^{14} in normal human subjects. WILLIAM SACKS (intr. by CECILIA RIEGEL). *Albert Einstein Med. Ctr.* (Biochem.)

10:45 **311.** Increase in glucose utilization during neuronal activity. MICHEL DOLIVO AND MARTIN G. LARRABEE (intr. by VERNON B. MOUNTCASTLE). *Johns Hopkins Univ.*

11:00 **312.** Ammonia production in sympathetic ganglia. WILLIAM J. STEKIEL* AND MARTIN G. LARRABEE. *Johns Hopkins Univ.*

11:15 **313.** Effect of age on calcium and magnesium content of rat brain. E. STREICHER (intr. by J. E. BIRREN). *Natl. Inst. of Mental Health.*

Cold Exposure

TUESDAY, 9:00 A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: J. M. Crismon

9:00 **314.** Racial variations to a standardized cold stress. THOMAS ADAMS, W. R. BEAVERS, B. G. COVINO, R. W. ELSNER AND R. J. HOCK (intr. by W. A. HIESTAND). *Ladd AFB.*

9:15 **315.** Response of young and old mice to cold. B. GRAD AND V. A. KRAL (intr. by R. A. CLEGHORN). *McGill Univ.*

9:30 **316.** Shivering only variable source of heat in intact unacclimatized dogs upon exposure to cold. H. T. HAMMEL AND JAMES DANIEL HARDY (intr. by MARGARET MCCOUCH). *Univ. of Pennsylvania Med. School.*

9:45 **317.** Metabolic rate changes in newborn dogs exposed to cold. H E. EDERSTROM AND

DONALD MCINTYRE.* *Univ. of North Dakota School of Medicine.*

10:00 **318.** Human heat loss during exercise at various environmental temperatures. D. MINARD, C. KITZINGER* AND T. H. BENZINGER. *Naval Med. Research Inst.*

10:15 **319.** Effect of breathing O_2 on O_2 consumption during exposure to cold. G. FROESE* AND A. C. BURTON. *Univ. of Western Ontario.*

10:30 **320.** Rewarming following prolonged hypothermia. E. J. FEDOR, CLEM RUSS, S. H. LEE AND BERNARD FISHER (instr. by P. L. MCLAIN). *Univ. of Pittsburgh.*

10:45 **321.** Performance and food intake at low temperatures. BERNARD WEISS (intr. by E. K. MARSHALL, JR.). *Johns Hopkins Med. School.*

11:00 **322.** Supplemental feeding and thermal comfort during sleep in the cold. M. B. KREIDER AND E. R. BUSKIRK (intr. by AUSTIN HENSCHEL). *Quartermaster Research & Development Ctr.*

11:15 **323.** Responses of hamsters during first two weeks of cold exposure. RICHARD L. FARRAND* AND G. EDGAR FOLK, JR. *State Univ. of Iowa.*

Reproduction, Sex Hormones

TUESDAY, 9:00 A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: James T. Bradbury

9:00 **324.** Lipemia of pregnancy in the rat. E. KNOBIL, M. C. HAGNEY* AND N. R. LAMPERT.* *Harvard Med. School.*

9:15 **325.** Effect of relaxin, estradiol and progesterone on water content of uterus of the rat. D. M. BRENNAN* AND M. X. ZARROW. *Purdue Univ.*

9:30 **326.** Metabolic adjustments to oxygen lack in the pregnant uterus. WILLIAM E. HUCKABEE,* JAMES METCALFE,* HARRY PRYSTOWSKY* AND D. H. BARRON. *Boston Univ., Harvard, Johns Hopkins and Yale.*

9:45 **327.** Uterine blood flow in pregnant goats. JAMES METCALFE, WILLIAM E. HUCKABEE, HARRY PRYSTOWSKY AND DONALD H. BARRON (intr. by J. S. NICHOLAS). *Harvard, Boston Univ., Johns Hopkins and Yale.*

10:00 **328.** Estrogen response of mammary gland in adrenalectomized guinea pigs. E. OTTO HÖHN (intr. by A. W. DOWNS). *Univ. of Alberta.*

10:15 **329.** Comparative physiology of estrogens. FREDERICK L. HISAW, JR. (intr. by F. L. HISAW). *Harvard Univ.*

10:30 **330.** Assay of luteinizing hormone. STANLEY ELLIS AND JEAN PORTER (intr. by JANE A. RUSSELL). *Emory Univ.*

10:45 **331.** Effect of tobacco smoke on the artificially induced vaginal cycle in spayed rats. W. A. WELLBAND, JR.,* NANCY MINER* AND A. H. STEINHAUS. *George Williams College.*

11:00 **332.** Effect of protein and thiouracil on the adult male rat following diethylstilbestrol administration. CYRUS M. GREENBERG (intr. by MARION A. REID). *Rutgers Univ.*

11:15 **333.** Influence of human chorionic gonadotropin on androgen secretion by the testis. TRULS BRINCK-JOHNSEN AND KRISTEN B. EIK-NES (intr. by LEO T. SAMUELS). *Univ. of Utah College of Medicine.* (Pharmacol.)

Stomach, GI Motility

TUESDAY, 9:00 A.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: Warren S. Rehm, Jr.

9:00 **334.** Potential differences across the stomach and duodenum of the dog. WARREN H. DENNIS,* ALBERT G. MUELLER,* CIPRIANO CANOSA* AND WARREN S. REHM. *Univ. of Louisville.*

9:15 **335.** Measurement of electrical potential across isolated human gastric mucosa. N. C. HIGHTOWER, JR. *Scott and White Clinic.*

9:30 **336.** Iodide metabolism of the dog stomach. G. L. HOWELL* AND L. VAN MIDDLESWORTH. *Univ. of Tennessee.*

9:45 **337.** Radioactive iodide in mucous and peptic glands of the rat stomach using a double-chambered diffusion apparatus. WILLIAM C. FOSTER, BERNARD P. LEWIS* AND FRANKLIN H. PAUL.* *Hahnemann Med. College.*

10:00 **338.** Reactions of gastric tissues to noncarcinogenic irritants. RHODA GRANT. *Univ. of Illinois.*

10:15 **339.** Pressures in the mouth and pharynx during sucking and swallowing. K. MIYAKAWA, J. KERSEY AND A. R. VELA (intr. by R. H. ALDEN). *Univ. of Tennessee.*

10:30 **340.** Simultaneous recording of motor activity of pyloric sphincter and proximal duodenum with a two-channel inductograph. HORTENSE LOUCKES* AND J. P. QUIGLEY. *Univ. of Tennessee.*

10:45 **341.** Metabolism of isolated circular muscle from small intestine of cat. H. L. DORMAN (intr. by R. E. JOHNSON). *Univ. of Illinois.*

11:00 **342.** Measurement of rate of distention of human colon. MARTIN LIPKIN AND MARVIN H. SLEISENGER (intr. by F. GUDERNATSCH). *Cornell Univ. Med. College.*

Tuesday Afternoon, April 16, 1:30 p.m.

Coronary

TUESDAY, 1:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Harold D. Green

1:30 **343.** Coronary flow studies with Dial-urethane anesthesia compared with chloralose anesthesia. T. A. BALOURDAS AND J. C. SCOTT. *Hahnemann Med. College.*

1:45 **344.** Epinephrine, norepinephrine and coronary blood flow. ROBERT M. BERNE. *Western Reserve Univ. School of Medicine.*

2:00 **344A.** Cardiac effects of norepinephrine and methoxamine following acute coronary embolization. S. V. GUZMAN, J. W. WEST, A. T. FAULK AND S. BELLET (intr. by E. L. FOLTZ). *Philadelphia Gen. Hosp. and Univ. of Pennsylvania.*

2:15 **345.** Inhibitory reflexes elicited by intracoronary injections of acetylcholine, veratridine and ganglionic stimulating agents. J. W. WEST AND S. V. GUZMAN (intr. by C. F. SCHMIDT). *Univ. of Pennsylvania and Philadelphia General Hosp.*

2:30 **346.** Absence of vasoactive substances in coronary sinus blood of dogs. ROGER W. JELLIFFE,* C. R. WOLF,* ROBERT M. BERNE AND RICHARD W. ECKSTEIN. *Western Reserve Univ. School of Medicine.*

2:45 **347.** Influence of chronic bilateral vagotomy on mortality rate following coronary occlusion in the dog. DAVID M. LONG, GERARD D. KAISER, JOHN E. SUDOL, WILLIAM C. SHOEMAKER AND RAYMOND C. TRUEX (intr. by JOSEPH R. DIPALMA). *Hahnemann Med. College and Hosp.*

3:00 **348.** Effect of hypoxemia on coronary flow and cardiac oxygen consumption. H. FEINBERG,* A. GEROLA* AND L. N. KATZ. *Michael Reese Hosp.*

3:15 **349.** Intracoronary injection in non-infarcted and infarcted hearts. A. SIDNEY HARRIS, RICHARD A. LIPTAK,* DUNCAN D. BURFORD* AND LOUIS A. TOTH. *Louisiana State Univ. School of Medicine.*

Renal Circulation, Metabolism

TUESDAY, 1:30 P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Stanley E. Bradley

1:30 **350.** Renal hemodynamics and function during hypothermia. C. BLATTEIS AND S. M. HORVATH (intr. by W. W. TUTTLE). *State Univ. of Iowa.*

1:45 **351.** Instantaneous dimension - pulse and mean dimensional changes in dog kidney. SHERIDAN L. C. PERRY, EDWARD HAWTHORNE, WILLIAM KADETZ AND JOHN P. MARBARGER (intr. by JOSEPH L. JOHNSON). *Howard Univ. and Univ. of Illinois.*

2:00 **352.** Renal vascular shunts and autoregulation of blood flow and filtration rate. DAVID D. THOMPSON, FREDERIC KAVALER* AND RODOLFO LOZANO.* *Cornell Med. College.*

2:15 **353.** Relation of kidney lymph to fluids which functionally distend the kidney. H. G. SWANN AND A. A. ORMSBY.* *Univ. of Texas Med. School.*

2:30 **354.** Metabolism of transplanted kidney. P. NATHAN* AND BENJAMIN F. MILLER. *May Inst. for Med. Research and Univ. of Cincinnati College of Medicine.* (Biochem.)

2:45 **355.** Renal oxygen consumption in acidosis and alkalosis. J. WILLIAM POPPELL* AND KATHLEEN E. ROBERTS. *Mem. Ctr. for Cancer and Allied Diseases.*

3:00 **356.** Effect of phlorizin on oxidative metabolism in kidney. DANIEL M. KELLER* AND WILLIAM D. LOTSPEICH. *Univ. of Cincinnati College of Medicine.*

3:15 **357.** Excretion of malic acid in relation to the tricarboxylic acid cycle in kidney. P. VISHWAKARMA (intr. by GUSTAV ECKSTEIN). *Univ. of Cincinnati College of Medicine.*

Graduate Students in Physiology Session on Teaching

TUESDAY, 1:30 P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: E. F. Adolph

358. Graduate training in the writing of scientific papers. C. J. WIGGERS. *Bunts Educational Inst.*

359. Teaching physiology by television. W. C. MCNELLY. *Miami Univ.*

360. Panel Discussion, with the following participants: F. A. BROWN, JR., *Northwestern Univ.*; C. F. CODE, *Mayo Foundation*; M. J. FREGLY, *Univ. of Florida*; V. E. HALL, *Univ. of California at Los Angeles*; L. V. HEILBRUNN, *Univ. of Pennsylvania*; J. O. HUTCHENS, *Univ. of Chicago*; R. E. JOHNSON, *Univ. of Illinois at*

Urbana; C. N. H. LONG, *Yale Univ.*; ROBERT RASCH,* *Univ. of Chicago*; B. T. SCHEER, *Univ. of Oregon*; D. F. SEARS, JR.,* *Univ. of Rochester.*

Brain Stem, Spinal Cord

TUESDAY, 1:30 P.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: Mary A. B. Brazier

1:30 **361.** Lower brain stem facilitation of cardiovascular activity. RICHARD L. GLASSER (intr. by WILLIAM R. AMBERSON). *Univ. of Maryland School of Medicine.*

1:45 **362.** Intrinsic periodicity of isolated pontile respiratory mechanism in the cat. MORTON I. COHEN* AND S. C. WANG. *Columbia Univ.*

2:00 **363.** Efferent cerebellar pathways to brainstem. JAMES M. SPRAGUE AND W. W. CHAMBERS. *Univ. of Pennsylvania.*

2:15 **364.** Nature of long-lasting effects produced by a single pulse stimulation of the reticular formation. K. KOIZUMI,* I. SUDA* AND C. MCC. BROOKS. *State Univ. of New York Med. Ctr.*

2:30 **365.** Cortico-spinal tract of cat. W. W. CHAMBERS AND C. N. LIU.* *Univ. of Pennsylvania.*

2:45 **366.** Ataxia and the rubrospinal tract. FRED A. METTLER AND FERNANDO L. ORIOLI.* *Columbia Univ.*

3:00 **367.** Rigidity of spinal origin. SAMUEL GELFAN, A. A. EURNEKIAN* AND I. M. TARLOV.* *New York Med. College.*

3:15 **368.** Response of crossed motoneurons to activity in afferents from muscle stretch receptors. EDWARD R. PERL. *State Univ. of New York College of Medicine.*

3:30 **369.** Effects of temperature on electrical activity of bullfrog spinal cord. JOHN A. GERGEN* AND EDGAR L. GASTEIGER. *Harvard Med. School.*

Shock, Hemorrhage, Burns

TUESDAY, 1:30 P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: Henry K. Beecher

1:30 **370.** Mesenteric lymphatic adjustments during shock. S. BAEZ, A. CARLETON* AND I. FORBES.* *Cornell Univ. Med. College and New York Hosp.*

1:45 **371.** Paper electrophoretic studies of serum proteins in experimental shock induced by massive soft tissue wounds. R. W. GILLETTE, A. R. MANSBERGER, JR., J. H. OPPENHEIMER, B. F. CALDWELL AND E. G. NEFF (intr. by C. M. HERGET). *Army Chem. Ctr.*

2:00 **372.** Adrenal cortex and post-traumatic sodium and potassium metabolism. LEONARD SHARE AND JOHN B. STADLER.* *Western Reserve Univ. School of Medicine.*

2:15 **373.** Some circulatory changes in injured goats. RUBERT S. ANDERSON, FRED W. STEMLER,* RAYMOND F. MCHUGH* AND EARL B. ROGERS.* *Army Chem. Ctr.*

2:30 **374.** Survival of undernourished organism following tourniquet shock. KENNETH D. SERKES, MORTON D. PAREIRA AND STANLEY LANG (intr. by MICHAEL SOMOGYI). *Jewish Hosp. of St. Louis.* (Biochem.)

2:45 **375.** Quantitative evaluation of compensatory responses of dogs to hemorrhage. SHU CHIEN (intr. by MAGNUS I. GREGERSEN). *Columbia Univ.*

3:00 **376.** Coagulation mechanism in hemorrhagic shock. JAMES J. SMITH, JOHN P. HARTWICK AND MICHAEL J. REGAN (intr. by ROBERT D. TAYLOR). *Marquette Univ. School of Medicine.*

3:15 **377.** Induced visceral hypothermia in acute hemorrhage and hemorrhagic hypotensive shock. W. M. PARKINS, S. J. LEBRIE* AND M. L. COADY.* *Univ. of Pennsylvania School of Medicine.*

3:30 **378.** Effect of various types of fluid therapy on survival of monkeys exposed to a standardized scald. SIGMUND E. LASKER* AND CHARLES L. FOX, JR. *New York Med. College.*

3:45 **379.** Influence of cold exposure on development of mild thermal burns in the rat. JAMES DANIEL HARDY AND L. ZITOWITZ.* *Univ. of Pennsylvania School of Medicine and Naval Med. Acceleration Lab.*

Adrenaline, Noradrenaline

TUESDAY, 1:30 P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: M. S. Goldstein

1:30 **380.** Determination of adrenaline and noradrenaline in aqueous solution. SIDNEY ROSTON (intr. by JOSEPH BLAIR). *Army Med. Research Lab.*

1:45 **381.** Biosynthesis of adrenaline and noradrenaline by sympathetic nerves and ganglia. MCC. GOODALL AND NORMAN KIRSHNER.* *Duke Univ. School of Medicine.*

2:00 **382.** Formation of adrenaline from noradrenaline. NORMAN KIRSHNER AND MCC.

GOODALL (intr. by KEITH S. GRIMSON). *Duke Univ. School of Medicine.*

2:15 **383.** Identification of a major urinary metabolite of norepinephrine. MARVIN D. ARMSTRONG AND ARMAND MCMILLAN.* *Univ. of Utah.* (Biochem.)

2:30 **384.** Nature of metabolites of epinephrine containing isotopic carbon. OSCAR RESNICK* AND FRED ELMADJIAN. *Worcester Fndn. and Worcester State Hosp.*

2:45 **385.** Effect of hypoglycemia and amphenone on adrenal secretion of epinephrine and norepinephrine. J. E. BETHUNE, A. GOLDFIEN, M. S. ZILELI AND R. H. DESPOINTES (intr. by G. W. THORN). *Peter Bent Brigham Hosp.*

3:00 **386.** Effect of epinephrine on carbohydrate metabolism of CO_2 narcotized rats. C. T. G. KING (intr. by C. M. WILLIAMS). *U. S. Naval Submarine Base.*

3:15 **387.** Interaction between adrenaline and reticular formation as a source of bulbar inhibition. J. I. CRANMER AND L. M. N. BACH (intr. by J. K. HAMPTON, JR.). *Tulane Univ. School of Medicine.*

Energy Metabolism, Body Composition

TUESDAY, 1:30 P.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: Thomas H. Allen

1:30 **388.** A respiration-type chamber for long-term total energy metabolism studies in man. G. DONALD WHEDON,* ERNEST E. HUBER, JR.,* RONALD H. THOMPSON* AND RUSSELL M. WILDER. *Natl. Inst. of Arthritis and Metabolic Diseases.*

1:45 **389.** Apparatus for continuous recording of insensible weight loss (IWL); clinical and experimental applications. GEORGE M. GUEST AND MARY D. PETTIT.* *Children's Hosp. Research Fndn.* (Biochem.)

2:00 **390.** Standardization of test exercise. J. E. COTES, F. MEADE AND M. E. WISE (intr. by R. H. SHEPARD). *British Med. Research Council, Wales.*

2:15 **391.** Changes in the O_2 requirements of men during exhausting runs. S. ROBINSON, D. L. ROBINSON* AND R. J. MOUNTJOY.* *Indiana Univ.*

2:30 **392.** Basal metabolic rate in man in semistarvation and refeeding. FRANCISCO GRANDE, JOSEPH T. ANDERSON, HENRY L. TAYLOR AND ANCEL KEYS (intr. by CARLOS MARTINEZ). *Univ. of Minnesota.*

2:45 **393.** Nutrient and energy metabolism in patients with and without cancer during hyperalimentation with fat administered intravenously. DONALD M. WATKIN AND JESSE L. STEINFELD (intr. by MORRIS BELKIN). *Natl. Cancer Inst.* (Pharmacol.)

3:00 **394.** Estimation of lean body weight from skeletal (x-ray) diameters. A. R. BEHNKE. *U. S. Naval Radiological Defense Lab.*

3:15 **395.** Some properties of the fat-free body of the guinea pig. GROVER C. PITTS. *Univ. of Virginia School of Medicine.*

3:30 **396.** Smoking and body composition. JOSEF BROZEK AND ANCEL KEYS. *Univ. of Minnesota.*

Physiology Society Business Meeting

TUESDAY, 4:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Program on page 446

Wednesday Morning, April 17, 9:00 a.m.

Symposium: Tissue Oxygen Tension

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: J. H. Comroe, Jr.

397. Introduction: Determinants of tissue oxygen tension. SEYMOUR S. KETY. *Natl. Inst. of Mental Health.*

398. Tissue oxygen tension and oxygen utilization by tissues. BRITTON CHANCE. *Univ. of Pennsylvania.*

Methods for measuring tissue oxygen tension; theory and evaluation

399. Oxygen electrode. C. M. CONNELLY.* *Rockefeller Inst. for Med. Research.*

400. Gasometric techniques. HERMANN RAHN. *Univ. of Buffalo School of Medicine.*

Regional oxygen tension

401. Brain and nerve. PHILIP W. DAVIES. *Johns Hopkins Univ.*

402. Kidney. R. B. REEVES.* *Harvard Med. School.*

403. Skin and muscle. HUGH MONTGOMERY. *Univ. of Pennsylvania.*

404. Panel discussion. Discussants: L. C. CLARK, JR., *Fels Research Inst.*; M. G. LARRABEE, *Johns Hopkins Univ.*; A. A. PANDAZI,* *Marquette Univ.*; R. H. SHEPARD,* *Johns Hopkins Univ.*

Renal Function

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Robert F. Pitts

9:00 405. Function of blood-perfused dog kidney at low temperatures. RODNEY B. HARVEY. *Univ. of Utah College of Medicine.*

9:15 406. A ureteral reflex modifying renal function. ELLIOTT LEE HIX (intr. by IRVIN M. KORR). *Kirksville College of Osteopathy and Surgery.*

9:30 407. Urea excretion in sheep and dog. BODIL SCHMIDT-NIELSON, H. V. MURDAUGH,* H. OSAKI* AND ROBERTA O'DELL.* *Duke Univ.*

9:45 408. Interpretation of urine CO_2 tension. THOMAS J. KENNEDY, JR., MURRAY EDEN* AND ROBERT W. BERLINER. *Natl. Heart Inst.*

10:00 409. Glucose titrations in acute anemia. R. H. KESSLER*, O. P. A. HEIDENREICH* AND R. F. PITTS. *Cornell Med. College.*

10:15 410. Organic acid excretion in experimental alkalosis. PAUL MELIUS* AND MORRIS A. LIPTON. *VA Research Hosp. and Northwestern Univ.* (Biochem.)

10:30 411. Evidence for a two-stage process in the normal reabsorption of bicarbonate. WILLIAM B. SCHWARTZ, ADRIEN J. FALBRIARD AND ARNOLD S. RELMAN (intr. by E. R. LOEW). *Tufts Univ. and Boston Univ.*

10:45 412. Renal response to magnesium loading in the dog. EARL S. BARKER,* JOHN K. CLARK AND J. RUSSELL ELKINTON. *Univ. of Pennsylvania.*

11:00 413. Gram negative endotoxin and renal function. L. B. HINSHAW,* C. H. CARLSON,* G. M. BRADLEY* AND M. B. VISSCHER. *Univ. of Minnesota.*

Heart: Patho-Physiology

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Lewis Dexter

9:00 414. Functional changes during cardiac failure produced by hemorrhage in dogs with pulmonic stenosis. JAMES O. DAVIS, M. JAY GOODKIND* AND WILMOT C. BALL, JR.* *Natl. Heart Inst.*

9:15 415. Dynamics of atrial septal defects. S. RODBARD AND R. KOHN.* *Univ. of Buffalo.*

9:30 416. Korner-Shillingford method for measurement of valvular insufficiency. PAUL NOVACK,* ROBERT C. SCHLANT,* ARTHUR O. PHINNEY, JR.,* FLORENCE W. HAYNES AND LEWIS DEXTER. *Harvard Med. School and Peter Bent Brigham Hosp.*

9:45 417. Hemodynamics of mitral stenosis and regurgitation. FLORENCE HAYNES, PAUL NOVACK,* ROBERT SCHLANT,* ARTHUR PHINNEY* AND LEWIS DEXTER. *Peter Bent Brigham Hosp. and Harvard Med. School.*

10:00 418. Quinidine and quinidine-like compounds on hypothermic ventricular fibrillation. E. T. ANGELAKOS* AND A. H. HEGNAUER. *Boston Univ. School of Medicine.*

10:15 419. Functional reactivation with fructose of the hypothermic heart after potassium

arrest. L. J. O'Brien,* F. W. Gonzalez* and M. M. Guest. *Univ. of Texas Med. Branch.*

10:30 **420.** Hyperpotassemia, cardiac arrhythmias and ventricular fibrillation resulting from rapid reversal of hypercarbia. Philip W. Andrews,* Frank E. Adrian* and Archer S. Gordon. *Univ. of Illinois College of Medicine.*

10:45 **421.** Relationship between degree of coarctation stenosis and resulting murmurs produced in the aorta. Merrill P. Spencer and Adam B. Denison, Jr. *Bowman Gray School of Medicine.*

11:00 **422.** Reduction of adrenal cortical steroids by passively congested rat liver. F. Eugene Yates and John Urquhart (intr. by E. M. Landis). *Harvard Med. School.*

Brain Function, EEG

Wednesday, 9:00 a.m.—Conrad Hilton, Upper Tower Room

Chairman: John M. Brookhart

9:00 **423.** Some functional localizations in amygdala. Charles D. Wood and Byron A. Schottelius (intr. by Walter S. McClellan). *Univ. of North Carolina.*

9:15 **424.** Chronic striatal cats. G. H. Wang. *Johns Hopkins Hosp.*

9:30 **425.** Anatomical identification of somatic sensory cortical neurones responding with short latencies to specific afferent volleys. M. Rayport (intr. by H. H. Jasper). *Montreal Neurological Inst.*

9:45 **426.** Potentials evoked in olfactory bulb by electrical stimulation of contralateral bulb. Raymond R. Walsh (intr. by F. X. Gassner). *Univ. of Colorado.*

10:00 **427.** Postural reactions elicited by brain stimulation through implanted electrodes. Irving H. Wagman, C. A. Papatheodorou* and Morris B. Bender. *Mount Sinai Hosp. of New York.*

10:15 **428.** Primary cortical responses evoked by stimulation of lateral geniculate radiations in unanesthetized cats. Arnold Schulman and Edward V. Evarts (intr. by Wade H. Marshall). *Natl. Inst. of Mental Health.*

10:30 **429.** Corpus callosum and interhemispheric communication: enduring memory effects. Ronald E. Myers (intr. by Roger W. Sperry). *Univ. of Chicago and California Inst. of Technology.*

10:45 **430.** Unitary responses of "Betz" cells to antidromic and orthodromic excitation. Arnold L. Towe and Harry D. Patton (intr. by T. C. Ruch). *Univ. of Washington School of Medicine.*

11:00 **431.** Sustained cortical potential changes induced by thalamic stimulation. J. M. Brookhart, A. Arduini,* M. Mancia* and G. Moruzzi.* *Università di Pisa, Italy.*

11:15 **432.** Contribution of cellular elements to primary response of somatosensory cortex. Harry D. Patton and Arnold L. Towe.* *Univ. of Washington School of Medicine.*

Cold Acclimatization, Hibernation

Wednesday, 9:00 a.m.—Conrad Hilton, Beverly Room

Chairman: Austin F. Henschel

9:00 **433.** Metabolic acclimation to cold in man. P. F. Scholander, H. T. Hammel,* K. Lange Andersen* and Y. Løyning.* *Univ. Inst. of Zoophysiology, Oslo, Univ. of Pennsylvania, Norwegian Air Force Inst. of Aviation Medicine and Navy Med. Office, Oslo.*

9:15 **434.** Cardiovascular response of cold acclimatized dogs to immersion hypothermia. Benjamin G. Covino and William R. Beavers (intr. by Kaare Rodahl). *Arctic Aeromedical Lab.*

9:30 **435.** Effect of cold acclimation on thickness and mitotic index of epidermis. O. Heroux (intr. by J. S. Hart). *Natl. Research Council, Ottawa.*

9:45 **436.** Role of sympathetic nervous system in chemical regulation of heat production. A. C. L. Hsieh* and L. D. Carlson. *Univ. of Washington.*

10:00 **437.** Severe cold-exposure of large rats. A. Kurt Weiss (intr. by G. C. Ring). *Univ. of Miami School of Medicine and Howard Hughes Med. Inst.*

10:15 **438.** Hormonal control of fat infiltration into livers of cold-exposed rats. R. L. Jasper and H. M. Levy (intr. by L. L. Boyarsky). *Army Med. Research Lab.*

10:30 **439.** Hepatic $Q^N_{O_2}$ and mitochondrial number of cold-adapted rats. Robert E. Smith. *UCLA Med. Ctr. and VA Ctr.*

10:45 **440.** Effect of cold on thiamine-deficient rats. David A. Vaughan and Lucile N. Vaughan (intr. by A. P. Gagge). *Arctic Aeromedical Lab.*

11:00 **441.** Metabolic rates and rectal temperatures of active and "hibernating" black bears. Raymond J. Hock. *Arctic Aeromedical Lab.*

11:15 **442.** Temperature, heart rate and oxy-

gen consumption during entrance into hibernation. CHARLES P. LYMAN. *Harvard Med. School.*

11:30 **443.** Phosphate levels during awakening from hibernation. MARILYN L. ZIMNY (intr. by LOUIS A. TOTH). *Louisiana State Univ. School of Medicine.*

Muscle Metabolism, Dystrophy

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Alexander Sandow

9:00 **444.** Time relations between muscular contraction and response of cytochrome chain. FRANS F. JÖBSIS* AND BRITTON CHANCE. *Univ. of Pennsylvania.*

9:15 **445.** Muscle oxygen consumption and isotonic work in the dog. JOHN T. FALES,* S. RICHARD HEISEY* AND KENNETH L. ZIERLER. *Johns Hopkins Univ.*

9:30 **446.** In vitro effects of sulfonylureas on isolated frog muscle. D. R. H. GOURLEY AND R. H. DODD.* *Univ. of Virginia Med. School.*

9:45 **447.** Influence of magnesium ion upon tension development by muscle fiber bundles. WILLIAM J. BOWEN. *Natl. Insts. of Health.*

10:00 **448.** Phosphate interchanges in tetanic contraction of muscle. JACOB SACKS AND GLEN J. DIXON.* *Univ. of Arkansas.*

10:15 **449.** Phosphate liberation by glycerinated muscle during contraction and relaxation. C. MOOS* AND L. LORAND. *Northwestern Univ.*

10:30 **450.** Effect of electrolytes on dual contractile response of artery strip to epinephrine. DAVID F. BOHR, DONALD C. BRODIE* AND DONALD CHEU.* *Univ. of California and Univ. of Michigan.*

10:45 **451.** Experimental muscular dystrophy in the Dutch rabbit. L. C. SENAY, JR.* AND H. M. HINES. *State Univ. of Iowa.*

11:00 **452.** Contractility of dystrophic mouse muscle. MANFRED BRUST* AND ALEXANDER SANDOW. *Washington Square College of Arts and Science.*

11:15 **453.** Enzyme studies in mouse dystrophia muscularis. I. M. WEINSTOCK,* SANDRA EPSTEIN* AND A. T. MILHORAT. *Cornell Univ. Med. College.*

GI Physiology

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: Edmund S. Nasset

9:00 **454.** Increase in amylase of rat submaxillary gland in response to feeding or acetylcholine. L. H. SCHNEYER AND C. A. SCHNEYER.* *Univ. of Alabama Med. Ctr.*

9:15 **455.** Human saliva: volume, sodium, potassium and Na/K. IRA L. SHANNON (intr. by HERMAN I. CHINN). *Randolph AFB.*

9:30 **456.** Choice of concentration of acidic drinking fluids by rats. WILLARD G. CLEMENTS* AND GERALD J. COX. *Univ. of Pittsburgh School of Dentistry.* (Nutr.)

9:45 **457.** Pancreatic secretion in the rat. MORTON I. GROSSMAN. *VA Ctr. and Univ. of California Med. Ctr.*

10:00 **458.** Effect of hepatic arterialization upon biliary secretion. S. H. LEE,* MORTON LEVINE, E. J. FEDOR AND BERNARD FISHER (intr. by T. K. KRUSE). *Univ. of Pittsburgh.*

10:15 **459.** Dependence of biliary BSP excretion on route of administration (hepatic artery or portal vein). R. W. BRAUER, OTTO S. SHILL* AND J. S. KREBS.* *U. S. Naval Radiological Defense Lab.* (Pharmacol.)

10:30 **460.** Acceleration of hepatic cholesterol synthesis in dogs by biliary fistulae. F. B. KELLY, JR.,* STEPHEN G. ECONOMOU,* M. STUMPE,* C. B. TAYLOR AND G. E. COX.* *Presbyterian-St. Luke's Hosp., Chicago.*

10:45 **461.** Hepatic responsiveness to glucagon. ROBERT E. CLANCY,* THEODORE B. VAN ITALLIE, DAVID H. SPODICK,* CHARLES E. WILDER* AND DAVID LITTMANN.* *VA Hosp., West Roxbury, and Harvard School of Public Health.* (Nutr.)

11:00 **462.** Intestinal absorption of methionine in situ. FRANCIS A. JACOBS AND DALE E. NICKERSON (intr. by B. DEBOER). *Univ. of North Dakota School of Medicine.*

11:15 **463.** Absorption of oleic acid from ileal loops. JOHN ANNEGERS. *Northwestern Univ. Med. School.*

Wednesday Afternoon, April 17, 1:30 p.m.

Cardiac Dynamics, Blood Pressure

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Louis N. Katz

1:30 **464.** Pressure-volume relations in the quiescent ventricle. GERHARD A. BRECHER AND ABBOTT T. KISSEN.* *Ohio State Univ. College of Medicine.*

1:45 **465.** Acceptance of blood by the ventricles. ERIC OGDEN AND MARGARET NISHIKAWARA.* *Ohio State Univ.*

2:00 **466.** Intraventricular pressure responses to cardiac nerve stimulation. ALBERT KELSO* AND WALTER C. RANDALL. *Stritch School of Medicine and Graduate School, Loyola Univ.*

2:15 **467.** Amplification of systolic pressure in the aortic-radial system in man. J. LEO WRIGHT (intr. by NORMAN M. KEITH). *Mayo Fndn. and Clinic.*

2:30 **468.** Electronic servo regulation of arterial pressure in the intact dog. HOMER R. WARNER (intr. by HOWARD B. BURCHELL). *Univ. of Utah and Latter Day Saints Hosp.*

2:45 **469.** Harmonic analysis of pressure wave propagation. MILTON LANDOWNE. *Natl. Heart Inst. and Baltimore City Hosps.*

3:00 **469A.** Pulmonary and systemic vascular responses to 5-hydroxytryptamine (serotonin). A. M. RUDOLPH AND M. H. PAUL (intr. by W. T. GOODALE). *Harvard Med. School and Children's Med. Ctr.*

3:15 **470.** Splanchnic, hepatic wedge, and arterial blood pressures following portacaval shunt. BERNARD FISHER, E. J. FEDOR* AND S. H. LEE.* *Univ. of Pittsburgh.*

3:30 **471.** Effect of pH change upon systemic large and small vessel resistance. FRANCIS J. HADDY, MALCOLM FLEISHMAN* AND JERRY B. SCOTT.* *Army Med. Research Lab.*

3:45 **472.** Correlation between pressure and flow changes in the unanesthetized dog. R. JENSEN, A. KOLIN, N. S. ASSALI AND G. HEROLD (intr. by JOHN FIELD). *Univ. of California.*

4:00 **473.** Effect of pentobarbital sodium upon some circulatory parameters. J. P. GILMORE (intr. by STANLEY W. HANDFORD). *Naval Med. Field Research Lab.*

Electrolyte Transport

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: William A. Brodsky

1:30 **474.** Separation of Na and K transport in kidney slices. E. C. FOULKES (intr. by Z. B. MILLER). *May Inst. for Med. Research and Univ. of Cincinnati College of Medicine.* (Biochem.)

1:45 **475.** Sodium and potassium binding by microsome fraction from rat liver cell homogenates. HISASHI SANUI* AND NELLO PACE. *Univ. of California.*

2:00 **476.** Exchange of Na^{24} with ether extractable Na of muscle and brain. JOHN C. VANATTA, ALLEN F. REID* AND ANN GRIFFIN.* *Univ. of Texas Southwestern Med. School.*

2:15 **477.** Sodium transport system of isolated frog skin. FRED M. SNELL AND O. R. MCINTYRE (intr. by F. LEE RODKEY). *Harvard Med. School.* (Biochem.)

2:30 **478.** Effects of variations in potassium concentration on ion transport and bioelectrical potentials of frog gastric mucosa. JOHN B. HARRIS,* HEDDY FRANK* AND I. S. EDELMAN. *Univ. of California School of Medicine.*

2:45 **479.** Kinetics of potassium exchange in the isolated perfused rabbit heart. E. W. HUMPHREY* AND JOHN A. JOHNSON. *Univ. of Minnesota.*

3:00 **480.** Potassium transfer and metabolism in cardiac and skeletal muscle. J. C. WOOD,* H. L. CONN, JR. AND M. E. MOLTHAN.* *Univ. of Pennsylvania School of Medicine.*

3:15 **481.** Substitution of lithium for potassium in active cation transport across the human erythrocyte membrane. ROBERT L. POST. *Vanderbilt Med. School.*

3:30 **482.** Effect of purine riboside on potassium flux of stored human erythrocytes. SEARLE B. REES, THOMAS J. MCMANUS, FABIAN J. LIONETTI AND JOHN G. GIBSON II (intr. by DALE G. FRIEND). *Peter Bent Brigham Hosp. and Harvard Med. School.* (Pharmacol.)

3:45 **483.** Potassium transfer from plasma to bile in the isolated perfused rat liver. G. F. LEONG,* R. J. HOLLOWAY* AND R. W. BRAUER. *U. S. Naval Radiological Defense Lab.* (Pharmacol.)

Pulmonary Circulation

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Andre F. Cournand

1:30 **484.** Effects of sympathomimetic amines on pulmonary circulation. DOMINGO M. AVIADO, JR., HORACIO R. ESTRADA* AND ALDO N. CORBASCIO.* *Univ. of Pennsylvania School of Medicine.*

1:45 **485.** Effect of Gram negative endotoxin on pulmonary circulation. HIROSHI KUIDA AND LERNER B. HINSHAW (intr. by J. T. KING). *Univ. of Minnesota.*

2:00 **486.** Development of air embolism. K. E. SCHAEFER, W. MCNULTY* AND CHARLES CAREY.* *U. S. Naval Med. Research Lab. and Yale Univ.*

2:15 **487.** Pulmonary vascular resistance as function of right ventricular, left auricular, intrapulmonary and pleural pressures. ALBERT ROOS, L. J. THOMAS, JR.,* E. L. NAGEL* AND D. C. PROMMAS.* *Washington Univ. School of Medicine.*

2:30 **488.** Pulmonary blood flow and resistance changes in dogs with atrial septal defects and aortic insufficiency. MARY GASPAR,* WILLIAM G. POGUE AND EDWARD HAWTHORNE (intr. by EVELYN M. ANDERSON). *Howard Univ.*

2:45 **489.** Effect of breathing oxygen on pulmonary vascular resistance in patients with acyanotic congenital heart disease. HIRAM W. MARSHALL,* H. J. C. SWAN AND EARL H. WOOD. *Mayo Fndn. and Clin.*

3:00 **490.** Effect of unilateral anoxia on pulmonary circulation. F. J. B. LANARI-ZUBIAUR (intr. by W. F. HAMILTON). *Med. College of Georgia.*

3:15 **491.** Compliance of arteries, veins and capillaries in isolated rabbit lungs. JOSEPH ENGELBERG* AND ARTHUR B. DUBOIS. *Univ. of Pennsylvania Grad. School of Medicine.*

3:30 **492.** Variations in ventilation/blood flow ratios during artificial respiration. D. A. HOLADAY, J. ISRAEL, E. K. WILLIAMS AND M. J. FRUMIN (intr. by ROBERT C. DARLING). *Columbia Univ. and Presbyterian Hosp.*

3:45 **493.** Effect of body tilt, pressurization of the lower body and autonomic blockade on thoracic aorta blood flow in man during the Valsalva maneuver. NEWTON C. BIRKHEAD,* HIRAM W. MARSHALL,* H. J. C. SWAN AND EARL H. WOOD. *Mayo Fndn. and Clinic.*

Reflexes, Conditioned Responses

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: George H. Bishop

1:30 **494.** Source of the dorsal root reflex. GRAYSON MCCOUCH AND GEORGE AUSTIN. *Univ. of Pennsylvania.*

1:45 **495.** Effects of muscle spindle discharge upon monosynaptic reflex as revealed by syncurine administration. E. ELDRED ,B. FUJIMORI* AND T. TOKIZANE.* *UCLA and VA Hosp., Long Beach.*

2:00 **496.** Facilitory and inhibitory effects of contralateral sciatic nerve stimulation on the patellar reflex. S. J. DE SALVA,* Y. T. OESTER AND N. ERCOLI. *Stritch School of Medicine and Armour Labs.* (Pharmacol.)

2:15 **497.** Sinusoidal analysis of low frequency response of blood volume receptor. KENT M. CHAPMAN (intr. by JAMES P. HENRY). *Wright-Patterson AFB.*

2:30 **498.** Vomiting in experimental uremia. H. L. BORISON, L. HEBERTSON,* R. JENSEN,* J. NELSON* AND M. BAKER.* *Univ. of Utah College of Medicine.*

2:45 **499.** Role of a selective membrane in the galvanic skin reflex. ROBERT EDELBERG, THEODORE GREINER* AND NEIL R. BURCH.* *Baylor Univ. College of Medicine.*

3:00 **500.** Electrographic recording of amygdaloid activity during a conditioned response. HENRY LESSE (intr. by H. E. KING). *Tulane Univ. Med. School.*

3:15 **501.** Alterations in feline behavior following bilateral amygdalectomy. P. J. MORGANE* AND A. J. KOSMAN. *Northwestern Univ.*

3:30 **502.** Subcortical stimulation as motivation and as signal for conditioned responses. HAROLD C. NIELSON,* ROBERT W. DOTY AND LESTER T. RUTLEDGE, JR.* *Univ. of Utah and Univ. of Michigan.*

3:45 **503.** Heat narcosis and its effect on retention of a learned behavior in the goldfish. JEAN A. CERF AND LEON S. OTIS (intr. by CLARA M. SZEGO). *Univ. of Illinois.*

Pituitary

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: George Sayers

1:30 **504.** Presence of trophic hormones in the fetal rat pituitary. ALEX N. CONTO-

POULOS* AND MIRIAM E. SIMPSON. *Univ. of California.*

1:45 **505.** Effects of growth hormone on carbohydrate metabolism of hypophysectomized dogs. N. ALTSZULER,* R. STEELE,* J. S. WALL* AND R. C. DE BODO. *New York Univ. College of Medicine and Brookhaven Natl. Lab.*

2:00 **506.** Growth hormone and nitrogen retention in the hypophysectomized rhesus monkey. R. C. WOLF,* E. KNOBIL AND R. O. GREEP. *Harvard Med. School.*

2:15 **507.** Effect of discontinuous treatment of the Norway rat with growth hormone. J. D. EMERSON AND G. M. EMERSON (intr. by T. W. ROBINSON). *Univ. of Alabama Med. Ctr.*

2:30 **508.** Cardiac output in the pituitary giant rat. A. L. SIEGEL AND J. D. EMERSON (intr. by J. M. BRUHN). *Univ. of Alabama Med. Ctr.*

2:45 **509.** Effect of posterior lobe extracts on ACTH release. S. M. MCCANN. *Univ. of Pennsylvania School of Medicine.*

3:00 **510.** Aldosterone excretion from hypophysectomized dogs with thoracic inferior vena cava constriction. WILMOT C. BALL, Jr.* ROBERT C. BAHN, M. JAY GOODKIND* AND JAMES O. DAVIS. *Natl. Heart Inst. and Mayo Clinic.*

3:15 **511.** Renewed gonadotrophic function of pituitary grafts re-transplanted from kidney to median eminence. MIROSLAVA B. NIKITOVITCH* AND J. W. EVERETT. *Duke Univ.*

3:30 **512.** Response of vitamin B_6-deficient rats to gonadotrophic hormones. MARJORIE M. NELSON, ELOISE WOOTEN* AND HERBERT M. EVANS.* *Univ. of California.* (Nutr.)

3:45 **513.** A bioassay of thyrotropin. J. M. MCKENZIE (intr. by E. B. ASTWOOD). *Tufts Univ. Med. School and New England Ctr. Hosp.*

4:00 **514.** Disappearance of a soluble neurohypophysial protein after water restriction. R. W. ALBERS AND M. W. BRIGHTMAN (intr. by W. F. WINDLE). *Natl. Insts. of Health.*

Lipids

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Cecil Entenman

1:30 **515.** Polyethenoid acids as energy sources in the resting and exercised rat. JOHN D. EVANS AND DONALD E. PARLEE.* *Temple Univ. School of Medicine.*

1:45 **516.** Liver coenzyme A and total fatty acids in turtles under varying environmental conditions. STANLEY J. BRUMLEVE* AND X. J. MUSACCHIA. *St. Louis Univ.*

2:00 **517.** Validity of using I^{131} as a label for dietary and intravenous fat. E. VAN HANDEL* AND D. B. ZILVERSMIT. *Univ. of Tennessee.*

2:15 **518.** Disappearance of I^{131}-labeled lymph triglycerides and phosphatides from blood of dogs. ESTHER L. MCCANDLESS* AND D. B. ZILVERSMIT (intr. by J. A. DYE). *Univ. of Tennessee.*

2:30 **519.** Synthesis of lipids from radioactive methylmalonate by adipose tissue slices. D. D. FELLER AND E. FEIST.* *VA Hosp. and Univ. of Washington School of Medicine.*

2:45 **520.** Effect of weight reduction on composition and density of human adipose tissue. CECIL ENTENMAN, ALBERT R. BEHNKE, NELL S. AYRES* AND WILLIAM H. GOLDWATER.* *U. S. Naval Radiological Defense Lab.*

3:00 **521.** Effect of food intake on lipogenesis by liver slices in vitro. JAY TEPPERMAN, HELEN M. TEPPERMAN, MARGARET WILSON* AND JANET M. DEWITT.* *State Univ. of New York, Upstate Med. Ctr.*

3:15 **522.** Ineffectiveness of carnitine as a choline substitute in the prevention of fatty livers. IRVING B. FRITZ AND PHIL DUPONT.* *Univ. of Michigan, and Michael Reese Hosp.*

3:30 **523.** Response of mouse skin to hormones and unsaturated lipids. A. A. KANDUTSCH (intr. by J. L. FULLER). *Roscoe B. Jackson Mem. Lab.*

3:45 **524.** Reticuloendothelial function during alimentary lipemia. N. R. DI LUZIO. *Univ. of Tennessee.*

Enzymes, Transfusion

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: Theodore G. Bernthal

1:30 **525.** Enzyme synthesis in vitro. JOHN M. REINER. *New York State Health Dept.*

1:45 **526.** Relation of succinate to adrenocortical function. WILLIAM L. WEST* AND WALTER M. BOOKER. *Howard Univ.*

2:00 **527.** Short chain fatty acids as inhibitors of hepatic metabolism. DAVID RAPPORT, E. J. MASORO, J. M. FELTS* AND SYLVIA S. PANAGOS.* *Tufts Univ. School of Medicine.*

2:15 **528.** Pancreatic elastase. HERMAN COHEN, HERBERT MEGEL* AND WILLIAM KLEINBERG.* *Princeton Labs., Inc.*

2:30 **529.** Use of DPNH as coenzyme for glutathione reductase of hemolyzates. PAUL

CARSON, STANLEY SCHRIER AND C. L. FLANAGAN (intr. by ALF S. ALVING). *Univ. of Chicago.*

2:45 **530.** Penicillin inhibition of malonate and acetate metabolism of Pseudomonals fluorescens P-6. ROBERT C. BARNETT AND G. L. MORROW (intr. by E. L. PORTER). *Univ. of Texas Med. Branch.*

3:00 **531.** Uncoupling of oxidative phosphorylation by the free radical, tetramethyl-p-phenylenediamine. JANE HARTING PARK,* BLANCHE PITTMAN MERIWETHER,* C. R. PARK AND LEONARD SPECTOR.* *Vanderbilt Univ. and Massachusetts Gen. Hosp.*

3:15 **532.** An extractable factor in photosynthetic phosphorylation. M. AVRON AND A. T. JAGENDORF (intr. by W. D. MCELROY). *McCollum-Pratt Inst. and Johns Hopkins Univ.*

3:30 **533.** Capillary permeability to macromolecules: the stretched pore phenomenon. H. H. SHIRLEY, JR.,* C. G. WOLFRAM,* K. WASSERMAN AND H. S. MAYERSON. *Tulane Univ. School of Medicine.*

3:45 **534.** Effect of dextran on bleeding time, vascular fragility and platelet thrombus formation in the hamster. KENNETH A. ARENDT,* HERBERT J. BERMAN* AND GEORGE P. FULTON. *Boston Univ.*

4:00 **535.** Role of dog's spleen in overtransfusion. LEON KRAINTZ,* E. L. SMITH, R. A. HUGGINS AND M. FULLEN.* *Univ. of Texas and Baylor Univ.*

Placement Service

Lower Lobby, Conrad Hilton

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lower Lobby of the Conrad Hilton to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Thursday Morning, April 18, 9:00 a.m.

Symposium: Utilization of Recorded Knowledge

THURSDAY, 9:00 A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Maurice B. Visscher

536. Research on information exchange among scientists. HERBERT MENZEL* AND CHARLES Y. GLOCK.* *Bur. of Applied Social Research, Columbia Univ.*

537. Future growth of *Biological Abstracts* with special reference to its coverage of physiological literature. G. MILES CONRAD.* *Biological Abstracts, Philadelphia.*

538. National Institutes of Health Russian translation program. SCOTT ADAMS.* *Natl. Insts. of Health.*

539. Coding of small reprint collection on the central nervous system. RADAH HILL,* AND WILLIAMINA A. HIMWICH. *Galesburg State Research Hosp.*

540. A unique system for rapid access to large volumes of pharmacological data; application to published literature on chlorpromazine. HARRIET E. ROCKWELL,* ROBERT L. HAYNE* AND EUGENE GARFIELD.* *Smith, Kline & French Labs., Philadelphia, and Documation, Inc., Woodbury, N. J.*

541. Problems of coding in biological sciences. J. W. PERRY.* *Western Reserve Univ.*

542. *Discussants:* MILTON O. LEE, *Washington, D. C.*; CHARLES BISHOP,* *Univ. of Buffalo School of Medicine*; DURWOOD J. SMITH, *Univ. of Vermont*; AND R. K. MISHRA,* *Univ. of Montreal.*

Water Balance, Diuresis

THURSDAY, 9:00 A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Knut Schmidt-Nielsen

9:00 **543.** Relation of saluresis of urea loading to the normal excretion of electrolyte. CLARK D. WEST AND RUTH K. BAYLESS. *Univ. of Cincinnati.*

9:15 **544.** Water permeation coefficients for membranes calculated from osmotic and tracer data. ROBERT E. SWANSON (intr. by L. F. NIMS). *Brookhaven Natl. Lab.*

9:30 **545.** Intrarenal arterial infusion of aldosterone and antidiuretic hormone in the normal and adrenalectomized dog; effect on electrolyte and water excretion. A. C. BARGER, R. D. BERLIN* AND J. F. TULENKO.* *Harvard Med. School.*

9:45 **546.** Functional distribution of flow within the kidney. WILLIAM D. BLAKE. *Univ. of Oregon, Portland.*

10:00 **547.** Comparison of chloride space with other extracellular space estimates. W. O. CASTER* AND W. D. ARMSTRONG. *Univ. of Minnesota.*

10:15 **548.** Factors influencing course of mercurial diuresis in patients with mild congestive heart failure. DONALD GIBBONS,* JACOB GROSSMAN AND RAYMOND E. WESTON. *Montefiore Hosp.*

10:30 **549.** Distribution of a radiomercury labeled diuretic (chlormerodrin) in tissues of marine vertebrates. ROGER L. GREIF AND MARILYN R. DUVIGNEAUD.* *Marine Biological Lab. and Cornell Univ. Med. School.*

10:45 **550.** Effects of acid base balance on diuresis induced by organic and inorganic mercurials. R. I. LEVY,* I. M. WEINER* AND G. H. MUDGE. *Johns Hopkins Univ.* (Pharmacol.)

11:00 **551.** Excretory products of various mercury compounds in acidosis and alkalosis. I. M. WEINER,* R. I. LEVY* AND G. H. MUDGE. *Johns Hopkins Univ.* (Pharmacol.)

Circulation

THURSDAY, 9:00 A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Hymen S. Mayerson

9:00 **552.** Hemodynamics of intestinal circulation. EWALD E. SELKURT, MARIO P. SCIBETTA* AND THEODORE E. CULL.* *Western Reserve Univ.*

9:15 **553.** Arterial hemodynamics in aorto iliac stenosis in man. HENRY HAIMOVICI AND DORIS J. W. ESCHER.* *Montefiore Hosp.*

9:30 **554.** Peripheral circulation in cadavers

perfused with blood at necropsy. ISAAC STARR. *Univ. of Pennsylvania.*

9:45 **555.** Effect of different patterns of local exercise on peripheral blood flow. A. C. BAUER,* E. R. VANDERHOOF* AND C. J. IMIG. *State Univ. of Iowa.*

10:00 **556.** Transcapillary exchange of potassium in mammalian skeletal muscle. E. M. RENKIN. *Natl. Heart Inst.*

10:15 **557.** Influence of pharmacologic agents on capillary-AVA flow distribution in the perfused rabbit ear. P. A. RONDELL, L. E. PALMER AND D. F. BOHR (intr. by P. A. WRIGHT). *Univ. of Michigan.*

10:30 **558.** Lymph capillaries in the frog's web. YASUYOSI NISIMARU AND HIROSI IRISAWA (intr. by F. R. STEGGERDA). *Univ. of Hiroshima, Japan.*

10:45 **559.** Small vein responses to sympathetic nerve stimulation. DARRELL DAVIS (intr. by THOMAS FINDLEY). *Med. College of Georgia.*

11:00 **560.** Venous constriction in man during exposure to positive g-force. SIDNEY D. LEVERETT, JR., STUART BONDURANT, MITCHELL B. RILEY (intr. by EDWIN P. HIATT). *Wright-Patterson AFB.*

11:15 **561.** Calibration of an aortic circumference gauge. R. W. LAWTON AND C. C. COLLINS.* *Naval Air Development Ctr. and Univ. of Pennsylvania.*

11:30 **562.** Closed-circuit television for study of microcirculation during centrifugation. PAUL L. YUDKOFSKY (intr. by JOSEPH F. TOMASHEFSKI). *Wright-Patterson AFB.*

Neuropharmacology I

THURSDAY, 9:00 A.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: James A. F. Stevenson

9:00 **563.** Non-barbiturate depressants: effect on EEG and central polysynaptic mechanisms. E. B. SIGG,* J. A. SCHNEIDER AND R. HOLLAND.* *Ciba Pharmaceutical Products Inc.*

9:15 **564.** Role of alerting in apparent actions of drugs on cortical evoked potentials in rabbits. J. E. P. TOMAN, G. M. EVERETT AND A. H. SMITH, JR.* *Chicago Med. School and Abbott Labs.* (Pharmacol.)

9:30 **565.** Fate of serotonin perfused through an isolated brain with intact nervous connections. E. COSTA* AND M. H. APRISON. *Galesburg State Research Hosp.*

9:45 **566.** Monoamine oxidase inhibition (in situ "serotonin"), and cerebral synaptic inhibition. MELVYN I. GLUCKMAN,* VICTOR H. COHN, JR.,* E. ROSS HART* AND AMEDEO S. MARRAZZI. *VA Hosp., Pittsburgh.*

10:00 **567.** Effect of lysergic acid diethylamide (LSD-25) and serotonin on adult cortical brain cells in tissue culture. R. S. GEIGER (intr. by PERCIVAL BAILEY). *Univ. of Illinois.*

10:15 **568.** Fixation of 5-hydroxytryptamine by brain mitochondria. E. J. WALASZEK* AND L. G. ABOOD. *Univ. of Illinois.*

10:30 **569.** Central and peripheral effects of reserpine and 11-desmethoxyreserpine (Harmonyl) on the nervous system. G. M. EVERETT, J. E. P. TOMAN AND A. H. SMITH, JR.* *Abbott Labs. and Chicago Med. School.* (Pharmacol.)

10:45 **570.** Some psychophysiological effects of a tranquillizing agent. F. B. BENJAMIN, K. IKAI* AND H. E. CLARE.* *Univ. of Pennsylvania.*

11:00 **571.** Encephalitic activity of ether-soluble fraction of Folch and Lees. LASCA H. BOGDANOVE* AND GEORGE CLARK. *Univ. of Buffalo.*

11:15 **572.** Biphasic pattern in opposite "on and off" CO_2 effects on metrazol seizures. CHARLES R. CAREY AND K. E. SCHAEFER (intr. by ORR REYNOLDS). *U.S. Naval Med. Research Lab. and Naval Submarine Base.*

Effects of Heat: Smooth Muscle

THURSDAY, 9:00 A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: Harwood S. Belding

9:00 **573.** Thermoregulation in the atropinized subject. PAUL WEBB. *Wright-Patterson AFB.*

9:15 **574.** Physical factors of skin barrier layer and water diffusion into human skin. KONRAD J. K. BUETTNER AND GEORGE F. ODLAND.* *Univ. of Washington.*

9:30 **575.** Rate of change of skin temperature and temperature sensation. E. HENDLER AND JAMES DANIEL HARDY (intr. by CHARLES F. GELL). *Naval Air Material Ctr. and Univ. of Pennsylvania.*

9:45 **576.** Moisture index, a new clothing variable. ALAN H. WOODCOCK AND JOHN R. BRECKENRIDGE.* *Quartermaster Research and Development Ctr.*

10:00 **577.** Influence of heat acclimatization and physical conditioning on work performance after dehydration. E. R. BUSKIRK,*

P. F. Iampietro, W. P. Beetham, Jr.,* and D. E. Bass. *Quartermaster Research and Development Ctr.*

10:15 **578.** Influence of thermal environments on recovery from exposure to severe heat. M. L. Riedesel,* H. S. Belding and D. M. Ross.* *Univ. of Pittsburgh.*

10:30 **579.** Coupled electrical beats and other bioelectric phenomena in pregnancy and labor. S. D. Larks (intr. by W. A. Selle). *Univ. of California at Los Angeles.*

10:45 **580.** Conduction of peristaltic waves across ureteral anastomoses. William Sleator, Jr., Harvey Butcher, Jr.* and Werner Schmandt.* *Washington Univ. Med. School.*

11:00 **581.** Action of serotonin on motility of aneural smooth muscle. John Ferguson. *Creighton Univ. School of Medicine.*

11:15 **582.** Effects of some intracellular compounds on smooth muscle. W. Glen Moss and George A. Tershakovec.* *Univ. of Miami and Howard Hughes Med. Inst.*

Respiration: Gas Exchange

Thursday, 9:00 a.m.—Conrad Hilton, Astoria Room

Chairman: James N. Stannard

9:00 **583.** Use of aerosols to measure intrapulmonary mixing. Edward D. Palmes, Bernard Altshuler and Leonard Yarmus (intr. by L. W. Eichna). *New York Univ.*

9:15 **584.** Effect of position of body on alveolar gas composition. E. A. Reed. *Hahnemann Med. College.*

9:30 **585** Alveolar gas concentrations and respiratory center sensitivity to CO_2 during natural sleep. Eugene D. Robin, R. D. Whaley, C. H. Crump and D. M. Travis (intr. by Chester E. Leese). *Peter Bent Brigham Hosp.*

9:45 **586.** Alveolar surface tension. John A. Clements, Elwyn S. Brown and Rudolph P. Johnson (intr. by D. B. Dill). *Army Chem. Ctr.*

10:00 **587.** Non-uniform distribution of blood and gas in the lungs in pulmonary disease. George A. Saxton, Jr. and Janet Wolter (intr. by Raymond C. Ingraham). *Univ. of Illinois.*

10:15 **588.** Comparison of the helium and oxygen methods for measuring residual air. Hurley L. Motley and William J. Kuzman. *Univ. of Southern California.*

10:30 **589.** Effect of change in erythrocytic size and shape on rate of nitric oxide uptake. Elizabeth Carlsen* and Julius H. Comroe, Jr. *Univ. of Pennsylvania.*

10:45 **590.** Factors contributing to diminished ventilatory response to CO_2 of patients with obstructive emphysema. H. W. Fritts, Jr.,* A. P. Fishman and A. Cournand. *Columbia Univ.*

11:00 **591.** Method for determining pulmonary ventilation efficiency. Robert L. Carter,* Earl T. Carter* and Fred A. Hitchcock. *Ohio State Univ.*

11:15 **592.** Combined ventilatory and breath-holding evaluation of sensitivity to respiratory gases. R. C. Stroud and K. E. Schaefer (intr. by E. S. Mendelson). *U. S. Naval Med. Research Lab.*

Gastric Secretion

Thursday, 9:00 a.m.—Conrad Hilton, Bel Air Room

Chairman: Charles F. Code

9:00 **593.** Acid secretory responses following histamine stimulation and relationship between "maximum acid output" and number of parietal cells. I. N. Marks,* S. A. Komarov* and Harry Shay. *Temple Univ. School of Medicine.*

9:15 **594.** Evidence that histamine is a gastric secretory hormone. A. C. Ivy and Richard W. Schayer. *Rheumatic Fever Research Inst. and Univ. of Illinois.*

9:30 **595.** Dose-response relationship to histamine in the chronic gastric fistula rat. Ardelle Lane (intr. by S. C. Harris). *Northwestern Univ. and Univ. of Illinois.*

9:45 **596.** Cephalic phase of gastric secretion. T. M. Lin and R. S. Alphin. *Eli Lilly Research Labs.*

10:00 **597.** Effect of thiamin deficiency on secretion of acid by vagally denervated and vagally innervated gastric mucosa. Patricia A. Stefanik,* Marge K. Lavers,* M. Herbert Smith* and Charles F. Code. *Mayo Fndn. and Clinic.*

10:15 **598.** Effect of serotonin and reserpine on interdigestive gastric secretion in the rat. Harry Shay, David C. H. Sun* and Margot Gruenstein.* *Temple Univ. Med. Ctr.*

10:30 **599.** Thyroid and gastric secretion. E. S. Nasset, V. W. Logan,* M. L. Kelley, Jr.* and Mary Thomas.* *Univ. of Rochester.*

10:45 **600.** Effect of cortisone, hydrocortisone

and adrenocorticotrophic hormone on gastric secretion. DAVID C. H. SUN AND HARRY SHAY (intr. by STANLEY LORBER). *Temple Univ. Med. Ctr.*

11:00 **601.** Inhibitory effect of pancreatic secretin on gastric secretion. HERBERT B. GREENLEE,* ENRIQUE H. LONGHI,* JOSE DELGADILLO GUERRERO,* THOMAS S. NELSEN* AND LESTER R. DRAGSTEDT. *Univ. of Chicago.*

11:15 **602.** Acid secretion by isolated total stomach and stomach pouch. M. H. F. FRIEDMAN, HUBERT A. APPERT* AND HENRY HOFF.* *Jefferson Med. College.*

11:30 **603.** Simplified tubeless method for gastric acidity. J. M. HOLTHAUS, F. L. HUMOLLER AND J. R. WALSH (intr. by A. L. DUNN). *VA Hosp. and Creighton Univ. School of Medicine.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Exhibits

CONRAD HILTON, EXHIBITION HALL

Monday–Thursday, April 15–18, 8:45 A.M.–6:00 P.M.
Friday, April 19, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 569.

Thursday Afternoon, April 18, 1:30 p.m.

Hypertension

THURSDAY, 1:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: John W. Remington

1:30 **604.** Fundamental properties of rat heart tissue in experimental renal hypertension. J. P. HENRY,* W. V. WHITEHORN AND T. M. KING.* *Univ. of Illinois.*

1:45 **605.** Development of renal hypertension in adrenalectomized rats. MELVIN J. FREGLY. *College of Medicine, Gainesville.*

2:00 **606.** Potentiation of postnephrectomy hypertension by the 3-carbon units alanine pyruvate and lactate. E. E. MUIRHEAD, F. JONES* AND B. BROOKS.* *Univ. of Texas Southwestern Med. School.*

2:15 **607.** Adrenal regeneration hypertension: drug effects. J. J. CHART,* GLORIA ULSAMER,* LOUISE QUINN,* NANCY HOWIE,* BETTY SULLIVAN* AND ROBERT GAUNT. *Ciba Pharmaceutical Products Inc.*

2:30 **608.** Metabolism of arterial tissues of rats with experimental hypertension. MARIE M. DALY AND ESMERALDA GURPIDE (intr. by DAVID SEEGAL). *Columbia Univ.* (Immunol.)

2:45 **609.** Arterial wall electrolytes in desoxycorticosterone hypertension. PAUL D. REDLEAF* AND LOUIS TOBIAN. *Univ. of Minnesota.*

3:00 **610.** A system detected by bioassay in plasmas of patients with essential hypertension. STEPHEN HAJDU AND EDWARD LEONARD (intr. by ROBERT AKERS). *Natl. Heart Inst.*

3:15 **611.** Separation of a system found in plasmas of patients with essential hypertension. EDWARD LEONARD AND STEPHEN HAJDU (intr. by RONALD SCANTLEBURY). *Natl. Heart Inst.*

3:30 **612.** Pathogenesis of experimental hypertension produced by carotid sinus area constriction in dogs. E. E. CRANDALL,* H. L. MCCROREY,* E. J. SUKOWSKI* AND G. E. WAKERLIN. *Univ. of Illinois Med. School.*

Ion Transport

THURSDAY, 1:30 P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: H. Burr Steinbach

1:30 **613.** Kinetics and energetics of a non-carrier model for active transport. CLIFFORD S. PATLAK (intr. by FRANKLIN C. MCLEAN). *Univ. of Chicago.*

1:45 **614.** Electric activity and ion transport with single electroplax. ERNEST SCHOFFENIELS (intr. by DAVID NACHMANSOHN). *Columbia Univ.*

2:00 **615.** Kinetics of cellular action of injected bicarbonate in cerebral cortex. ALAN KOCH* AND DIXON M. WOODBURY. *Univ. of Utah.* (Pharmacol.)

2:15 **616.** Estimate of the active transport sodium pool. T. HOSHIKO AND HANS H. USSING (intr. by GORDON L. FARRELL). *Univ. of Copenhagen.*

2:30 **617.** Specificity of manganese pathway in the body. GEORGE C. COTZIAS AND JAMES J. GREENOUGH.* *Brookhaven Natl. Lab.* (Pathol.)

2:45 **618.** Processes concerned in net S^{35} accumulation by rat renal cortex in vitro. INGRITH DEYRUP. *Barnard College and Columbia Univ.*

3:00 **619.** Ionic transfer across the isolated large bullfrog large intestine. I. L. COOPERSTEIN,* DAVID CHALFIN* AND C. ADRIAN M. HOGBEN. *Natl. Heart Inst.*

3:15 **620.** Chloride transport and electrical phenomena in the stomach. RICHARD P. DURBIN* AND ERICH HEINZ. *Harvard Med. School and Tufts Univ. Med. School.* (Biochem.)

Aviation Physiology

THURSDAY, 1:30 P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Edward J. Baldes

1:30 **621.** Human stress response in jet aircraft operations. THADDEUS J. DOMANSKI (intr. by O. O. BENSON). *Randolph AFB.*

1:45 **622.** Cigarette smoking at altitude. C. H. KRATOCHVIL, S. S. WILKS AND W. A. GERRARD III (intr. by ROBERT T. CLARK). *Randolph AFB.*

2:00 **623.** Physiological effects of ozone. HANS G. CLAMANN AND RICHARD W. BANCROFT. *Randolph AFB.*

2:15 **624.** Effect of moderate and severe decompression on blood glucose of adrenalectomized dogs JEANNE Q. BARRY,* FREDERICK P. FERGUSON AND DIETRICH C. SMITH. *Univ. of Maryland School of Medicine.*

2:30 **625.** Effect of reduced pressure on the rat's heart. DAVID W. NORTHUP, J. CLIFFORD STICKNEY AND EDWARD J. VAN LIERE. *West Virginia Univ. School of Medicine.*

2:45 **626.** Post-mortem brain lactic acid as influenced by hypoxia and/or hypocapnia. DONALD D. VAN FOSSAN,* CLYDE BIDDULPH AND DOMINIC CRISCUOLO.* *Randolph AFB.*

3:00 **627.** Metabolic responses of adapted rats to acute stress. ROY B. MEFFERD, JR., HENRY B. HALE AND HERMAN H. MARTENS (intr. by HARRY F. ADLER). *Univ. of Texas and Randolph AFB.*

3:15 **628.** Urinary excretion of rats exposed to combinations of adverse environmental factors. HENRY B. HALE, ROY B. MEFFERD, JR. AND HERMAN H. MARTENS (intr. by P. C. TANG). *Randolph AFB and Univ. of Texas.*

End Plates, Synapses, Seizures

THURSDAY, 1:30 P.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: Robert Galambos

1:30 **629.** Intracellular recording from end plate regions of the rat M. gracilis anticus in situ. S. H. BRYANT (intr. by G. H. ACHESON). *Univ. of Cincinnati.*

1:45 **630.** Effect of curarizing drugs, compound 48-80 and pyribenzamine upon motor end plate. J. SZEPSENWOL. *Univ. of Puerto Rico.*

2:00 **631.** Presynaptic and postsynaptic inhibition of monosynaptic reflexes. K. FRANK AND M. G. F. FUORTES. *Natl. Inst. of Neurological Diseases and Blindness.*

2:15 **632.** Inhibitory mechanisms of gamma aminobutyric acid on an isolated nerve cell. CHARLES EDWARDS AND STEPHEN W. KUFFLER. *Johns Hopkins Univ.*

2:30 **633.** Analysis of impulse transmission in the squid giant synapse. I. TASAKI AND S. HAGIWARA.* *Natl. Inst. of Neurological Diseases and Blindness, and Marine Biological Lab.*

2:45 **634.** Factors affecting activity cycles of apical dendrites (cat). DOMINICK P. PURPURA,* EDGAR M. HOUSEPIAN* AND HARRY GRUNDFEST. *Columbia Univ.*

3:00 **635.** Effect of induced seizure discharges upon evoked cortical potentials. A. F. ABDULLAH* AND H. W. MAGOUN. *UCLA and VA Hosp., Long Beach.*

3:15 **636.** Cortical spread of after-discharge to induced seizure in monkey. B. KONIGSMARK AND J. D. FRENCH (intr. by R. SONNENSCHEIN). *VA Hosp., Long Beach, and UCLA.*

Vision, Eye Movements

THURSDAY, 1:30 P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Orr E. Reynolds

1:30 **637.** Intraretinal ERG of the unopened cat eye. KENNETH T. BROWN AND TORSTEN N. WIESEL (intr. by STEPHEN W. KUFFLER). *Johns Hopkins Med. School.*

1:45 **638.** Light-induced transient changes in the absorption spectrum of rhodopsin in solution. V. J. WULFF, E. W. ABRAHAMSON,* HENRY LINSCHITZ* AND R. G. ADAMS.* *Syracuse Univ.*

2:00 **639.** Kinetics of photochemical conversion of rhodopsin in solution. RALPH G. ADAMS, HENRY LINSCHITZ AND DONALD KENNEDY (intr. by GORDON K. MOE). *Syracuse Univ.*

2:15 **640.** Functional and metabolic development of the mammalian retina. WERNER K. NOELL AND LEONARD H. COHEN.* *Roswell Park Memorial Inst.*

2:30 **641.** Blood sugar level and visual flicker-fusion threshold following insulin coma. CARNEY LANDIS, D. DILLON,* J. LEOPOLD* AND J. RUTSCHMANN.* *NYS Psychiatric Inst.*

2:45 **642.** Tachistoscopic perception in monkeys. JOAQUIN M. FUSTER (intr. by ROBERT B. LIVINGSTON). *Univ. of California at Los Angeles.*

3:00 **643.** Effect of partial cerebral destruction on optokinetic nystagmus. PEDRO PASIK,* TAUBA PASIK* AND HOWARD P. KRIEGER. *Mount Sinai Hosp., New York.*

3:15 **644.** Single unit activity in visual cortex of the unanesthetized cat. DAVID H.

HUBEL (intr. by M. G. F. FUORTES). *Walter Reed Army Inst. of Research.*

3:30 **645.** Oculomotor pathways in brain stem as outlined by electrical stimulation. S. SHANZER,* C A. PAPATHEODOROU,* I. H. WAGMAN AND M. B. BENDER. *Mount Sinai Hosp., New York.*

3:45 **646.** Coordination of eye movements in cats. JANE E. HYDE AND ROBERT G. EASON.* *Univ. of California Med. Ctr.*

Insulin, Adrenal–Pituitary

THURSDAY, 1:30 P.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: Roy O. Greep

1:30 **647.** Effects of "total" pancreatectomy in the rat. ROBERT O. SCOW. *Instituto de Biologia y Medicina Experimental, Buenos Aires, and Natl. Inst. of Arthritis and Metabolic Diseases.*

1:45 **648.** Uptake of acetoacetic acid by diaphragms from control and alloxan diabetic rats. CLARISSA H. BEATTY, ROSE MARY BOCEK* AND EDWARD S. WEST.* *Univ. of Oregon Med. School.*

2:00 **649.** Effect of insulin on ethanol metabolism in diabetic dogs. F. W. KINARD, E. C. COX* AND M. G. HAY.* *Med. College of South Carolina.*

2:15 **650.** Action of insulin on release of fatty acids from tissue stores. EDWIN L. BIERMAN* AND VINCENT P. DOLE. *Rockefeller Inst.*

2:30 **651.** Effects of exogenous insulin upon urinary nonprotein nitrogen in cortisone-treated rats. PHILLIP E. GERTLER (intr. by D. J. INGLE). *Ben May Lab. for Cancer Research and Univ. of Chicago.*

2:45 **652.** Effects of glucagon on metabolism of carbohydrate and protein. JAMES M. SALTER,* I. W. F. DAVIDSON* AND CHARLES H. BEST. *Univ. of Toronto.*

3:00 **653.** Conversion of circulating glucose to CO_2 in normal, hypophysectomized and adrenalectomized dogs. R. STEELE, J. S. WALL,* N. ALTSZULER* AND R. C. DEBODO.* *Brookhaven Natl. Lab. and New York Univ. College of Medicine.* (Biochem.)

3:15 **654.** Adrenal weight-maintaining activity in plasma of patients with Cushing's syndrome. JOSEPH W. JAILER, DONALD LONGSON* AND NICHOLAS P. CHRISTY.* *Columbia Univ.*

3:30 **655.** Effect of nalorphine on inhibition of ACTH release by morphine in the rat. SUSAN EPSTEIN,* HUGH BURDETTE* AND PAUL L. MUNSON. *School of Dental Medicine and Medical School, Harvard Univ.* (Pharmacol.)

Physiology Society Business Meeting

THURSDAY, 4:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Friday Morning, April 19, 9:00 a.m.

Symposium: Bioclimatology (joint with Committee of Bioclimatology, American Meteorological Society)

FRIDAY, 9:00 A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Douglas H. K. Lee

Introduction

9:00 **656.** A prospectus of bioclimatology. FREDERIC SARGENT II, *Univ. of Illinois.*

9:10 **657.** Aim and purpose of this symposium. KONRAD J. K. BUETTNER, *Univ. of Washington.*

Physical Bioclimatology

9:20 **658.** Thermal stress and physiological strain. LOREN D. CARLSON. *Univ. of Washington School of Medicine.*

9:40 **659.** Invited discussion. HARWOOD S. BELDING. *Univ. of Pittsburgh, Graduate School of Public Health.*

9:50 **660.** Invited discussion. Meteorological components of heat balance. DAVID H. MILLER.* *Army Quartermaster Research and Development Command.*

Aerosol Bioclimatology

10:10 **661.** Aerosol in medicine. SAMUEL M. FEINBERG.* *Northwestern Univ. Med. School.*

10:25 **662.** Meteorological considerations in ragweed hay fever research. A. N. DINGLE.* *Univ. of Michigan.*

10:45 **663.** Air pollution by ragweed: medical aspects. J. E. GOODWIN,* J. A. MCLEAN,* F. M. HEMPHILL* AND J. M. SHELDON.* *Univ. of Michigan.*

Statistical Bioclimatology

11:10 **664.** Our present knowledge on correlations between weather changes, sferics, air electric space charges and human health and behavior. KONRAD J. K. BUETTNER.

11:40 **665.** Invited discussion. FREDERIC SARGENT II.

O_2 and CO_2 Tensions

FRIDAY, 9:00 A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Ward S. Fowler

9:00 **666.** Effects of altered expiratory pressures or resistances upon arterial oxygen saturation during artificial respiration. M. JACK FRUMIN, NORMAN A. BERGMAN AND DUNCAN A. HOLADAY (intr. by L. SHETTLES). *Columbia-Presbyterian Med. Ctr.*

9:15 **667.** A voltametric device for continuous measurement of oxygen partial pressure. J. RYAN NEVILLE (intr. by RICHARD W. BANCROFT). *Randolph AFB.*

9:30 **668.** Factors in oxygen high pressure pulmonary damage. KENNETH E. PENROD. *Duke Univ.*

9:45 **669.** Blood glucose in exposures to oxygen at high pressures. LARRY P. SULLIVAN* AND JOHN W. BEAN. *Univ. of Michigan.*

10:00 **670.** Mean difference in oxygen pressure between maternal and fetal blood in goats. HARRY PRYSTOWSKY, DONALD BARRON, JAMES METCALFE AND WILLIAM E. HUCKABEE (intr. by EDGAR J. BOELL). *Johns Hopkins, Yale, Harvard and Boston Univs.*

10:15 **671.** Comparative measurements with a new procedure for measuring blood oxygen tension in vitro, using Clark's platinum electrode. F. KREUZER AND T. R. WATSON, JR. (intr. by S. M. TENNEY). *Dartmouth Med. School.*

10:30 **672.** Arterio-venous potassium difference across the heart in severe acidosis. E. B. BROWN, JR. *Univ. of Minnesota.*

10:45 **673.** Serial changes in tissue CO_2 during acute respiratory acidosis. GEORGE NICHOLS, JR. (intr. by ERIC G. BALL). *Harvard Med. School.* (Biochem.)

11:00 **674.** Estimation of arterial CO_2 tension by the rebreathing technique. JACK D. HACKNEY, CHARLES H. SEARS AND CLARENCE R. COLLIER (intr. by J. E. THOMAS). *College of*

Med. Evangelists, Los Angeles County Hosp., and White Mem. Hosp.

11:15 **675.** CO_2 retention in animals during hypoventilation with adequate oxygenation. RICHARD H. EARLE, JOHN F. PERKINS, JR., JEVROSIMA STANIMIROVITCH, RICHARD EVANS, JOAN S. BYRNE AND WILLIAM E. ADAMS (intr. by ARNO B. LUCKHARDT). *Univ. of Chicago.*

11:30 **676.** Tissue CO_2 concentrations in the hypercapnic rat. ALAN M. THOMPSON AND E. B. BROWN, JR. (intr. by VICTOR LORBER). *Univ. of Minnesota.*

Blood Flow

FRIDAY, 9:00 A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Philip Dow

9:00 **677.** Oxygen consumption in skeletal muscle during reactive hyperemia. LLOYD R. YONCE (intr. by PHILIP DOW). *Med. College of Georgia.*

9:15 **678.** Blood flow responses in skeletal muscle to sudden changes in arterial pressure. W. N. STAINSBY AND E. M. RENKIN (intr. by J. A. SHANNON). *Natl. Heart Inst.*

9:30 **679.** Effect of elevated venous pressures upon blood flow through dog's hind leg. MATTHEW N. LEVY. *Albany Med. College.*

9:45 **680.** Rapid continuous measurement of leg blood flow in man: effects of vasodilator drugs. MARK H. LANE,* DARAB K. DASTUR,* DOUGLAS B. HANSEN* AND LOUIS SOKOLOFF. *Natl. Inst. of Mental Health.*

10:00 **681.** Translocation of fluid from the perfused hindlimb of the dog. O. W. SHADLE, M. ZUCKOFF* AND J. N. DIANA.* *Univ. of Louisville.*

10:15 **682.** Pressure flow relationships in the totally perfused dog. RAYMOND C. READ, HIROSHI KUIDA AND JOHN A. JOHNSON (intr. by W. E. PETERSEN). *Univ. of Minnesota.*

10:30 **683.** Cardio-vascular hemodynamics of consequence to crossed circulation in dogs. W. J. ROBERSON* AND S. M. HORVATH. *State Univ. of Iowa.*

10:45 **684.** Homeostatic regulation of body fluid volumes: role of a blood-flow-dependent control mechanism. ERNEST L. DOBSON. *Univ. of California.*

11:00 **685.** Vascular-extravascular exchange of I^{131} rabbit gamma globulin in organs and tissues of the rat. WILLIAM C. DEWEY (intr. by W. F. BALE). *Univ. of Rochester.*

11:15 **686.** Miniature transducer for electromagnetic determination of blood flow in unanesthetized animals. G. HERROLD, A. KOLIN, N. S. ASSALI AND R. JENSEN (intr. by D. B. TAYLOR). *Univ. of California Los Angeles.* (Pharmacol.)

11:30 **687.** Flow of fluids through collapsible tubes. J. P. HOLT, J. ALLENSWORTH,* D. COLLINS* AND J. DIANA.* *Univ. of Louisville.*

Neuropharmacology II

FRIDAY, 9:00 A.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: Hiram E. Essex

9:00 **688.** Local anesthetic studies on isolated frog sciatic nerves. A. P. TRUANT. *Astra Biological Labs.* (Pharmacol.)

9:15 **689.** Pentothal block of single nerve fibers and subsequent revival by means of anodal polarization. GORDON M. SCHOEPFLE. *Washington Univ.*

9:30 **690.** Measurement of spontaneous activity in medullated and non-medullated nerve fibers. J. M. RITCHIE* AND W. W. DOUGLAS. *Natl. Inst. for Med. Research, London, and Albert Einstein College of Medicine.* (Pharmacol.)

9:45 **691.** Excitation of non-medullated vagal afferents by drugs. W. W. DOUGLAS AND J. M. RITCHIE.* *Albert Einstein College of Medicine.* (Pharmacol.)

10:00 **692.** Histochemical demonstration of anticholinesterase action at selective sites in vivo. GEORGE B. KOELLE. *Univ. of Pennsylvania.* (Pharmacol.)

10:15 **693.** Effects of interneuron depressants on inhibition and facilitation of the patellar reflex. D. H. ABDULIAN,* W. R. MARTIN* AND K. R. UNNA. *Univ. of Illinois.* (Pharmacol.)

10:30 **694.** Tremor producing drug 1,4 dipyrrolidino-2-butyne ("Tremorine"). L. E. BLOCKUS* AND G. M. EVERETT. *Abbott Labs.* (Pharmacol.)

10:45 **695.** Effects of intraventricular injections on conditioned responses. E. R. JOHN,* K. L. CHOW,* M. GATSCH,* B. WENZEL* AND R. D. TSCHIRGI. *Univ. of California Med. Ctr.*

11:00 **696.** Studies of 5-hydroxyindoleacetic acid excretion in man. A. J. VALCOURT (intr. by H. E. HIMWICH). *Galesburg State Research Hosp.*

Comparative Physiology

FRIDAY, 9:00 A M —CONRAD HILTON, BEVERLY ROOM

Chairman: John Field II

9:00 **697.** Twenty-four-hour rhythmicity of urine volume and bladder emptying in hamsters. MONA R. GAULT (intr. by J. D. THOMSON). *State Univ. of Iowa.*

9:15 **698.** Intracellular water of larval tissues of Southern Armyworm. L. LEVENBOOK AND JEANNE KUHN.* *Jefferson Med. College, Philadelphia.*

9:30 **699.** Use of hydra for biochemical studies on regeneration. RICHARD G. HAM* AND ROBERT E. EAKIN. *Univ. of Texas.* (Biochem.)

9:45 **700.** The pCO_2 control of sexual differentiation in hydra. W. F. LOOMIS. *The Loomis Lab.* (Biochem.)

10:00 **701.** DDT-induced toxins in insect blood. JAMES STERNBURG, C. S. CHANG AND C. W. KEARNS (intr. by L. E. CHADWICK). *Univ. of Illinois.*

10:15 **702.** Responses of a crustacean photoreceptor. DONALD KENNEDY (intr. by V. F. LINDEMAN) *Syracuse Univ.*

10:30 **703.** Orientation in eleven families of bats. ALVIN NOVICK (intr. by D. R. GRIFFIN). *Harvard Univ.*

10:45 **704.** Body temperatures in aboriginals. PETER R. MORRISON. *Univ. of Wisconsin.*

11:00 **705.** Veratrine stimulation of ciliary activity. EDWARD AIELLO (intr. by TERU HAYASHI). *Columbia Univ.*

11:15 **706.** Anesthesia in turtles. HAROLD M. KAPLAN AND RICHARD TAYLOR.* *Southern Illinois Univ.*

11:30 **707.** Enzyme localization in erythrocytes. ALICE S. HUNTER* AND F. R. HUNTER. *Southern Illinois Univ.*

Sensory Physiology

FRIDAY, 9:00 A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Donald Scott, Jr.

9:00 **708.** Bio-electric studies of the cochlea. GEORGE MISRAHY, E. SHINABARGER, K. HILDRETH AND W. GANNON (intr. by H. O. PARRACK). *Wright-Patterson AFB.*

9:15 **709.** Some input-output relationships of the cochlea. BRUCE H. DEATHERAGE* AND HALLOWELL DAVIS. *Central Inst. for the Deaf.*

9:30 **710.** Microelectrode study of superior olivary responses to sounds. ROBERT GALAMBOS, JOHAN SCHWARTZKOPFF* AND ALLEN RUPERT.* *Walter Reed Army Inst. of Research.*

9:45 **711.** Auditory discrimination after ablation of temporal and insular cortex in cat. JAY M. GOLDBERG,* IRVING T. DIAMOND* AND WILLIAM D. NEFF. *Univ. of Chicago.*

10:00 **712.** Spatial summation of pain. L. C. GREENE AND JAMES DANIEL HARDY (intr. by A. M. STOLL). *U. S. Naval Air Development Ctr. and Univ. of Pennsylvania Med. School.*

10:15 **713.** Activity in cutaneous sensory nerves in response to stimulation of the skin with radiant energy. D. SCOTT, JR. AND JAMES DANIEL HARDY. *Univ. of Pennsylvania Med. School.*

10:30 **714.** Changes in tissue vulnerability induced by hypnotic suggestion. LORING F. CHAPMAN,* HELEN GOODELL* AND HAROLD G. WOLFF. *Cornell Univ. Med. College.*

10:45 **715.** Aerodynamics of vocal fold vibration during phonation in man. B. RAYMOND FINK AND F. KIRSCHNER (intr. by L. J. CIZEK). *Columbia Univ. and General Electric Corp.*

11:00 **716.** A physiological basis of taste psychophysics. LLOYD M. BEIDLER. *Florida State Univ.*

Erythrocytes, Bone Marrow

FRIDAY, 9:00 A.M.—CONRAD HILTON, BEL AIR ROOM

Chairman: William R. Duryee

9:00 **717.** Parallel decay of ATP and active cation fluxes in starved human erythrocytes. E. T. DUNHAM (intr. by JACK ORLOFF). *Natl. Heart Inst.*

9:15 **718.** Effect of temperature, pH, tonicity and glucose on erythrocyte uptake of $Na_2Cr^{51}O_4$, in vitro. PHILIP L. MOSSMAN AND FRANKLIN G. EBAUGH, JR. (intr. by ROY SWAN). *Cornell Univ. Med. School.*

9:30 **719.** Erythrocyte fractionation by means of serial osmotic hemolysis. ERNEST R. SIMON,* HELEN M. POSTMAN* AND YALE J. TOPPER. *Natl. Insts. of Health.* (Biochem.)

9:45 **720.** Quantitative aspects of erythropoiesis. CLEMENT A. FINCH, DENNIS M. DONOHUE,* ROBERT H. REIFF* AND MARY LU HANSON.* *Univ. of Washington.*

10:00 **721.** Effect of boiled anemic plasma used in conjunction with known erythropoietic stimuli. W. H. LINKENHEIMER AND H.

BERGER (intr. by T. H. JUKES). *American Cyanamid Co.* (Biochem.)

10:15 **722.** Bone marrow function in isolated perfused hind limbs of rats. SAMUEL KUNA,* ALBERT S. GORDON AND HARRY A. CHARIPPER. *New York Univ. and The Merck Inst.*

10:30 **723.** Myelograms relating to anemia and hematopoiesis following thermal injury in rats. MILES D. MCCARTHY AND JOHN ODELL.* *Pomona College.*

10:45 **724.** Peptidase patterns in bone marrow of rats treated with erythropoietic stimulating extracts. MYRON TANNENBAUM,* ALBERT S. GORDON, SAM J. PILIERO, PAUL T. MEDICI* AND CHARLES D. SIEGEL.* *New York Univ. and St. John's Univ.*

11:00 **725.** Neutrophil release from bone marrow. HARVEY M. PATT, MARY A. MALONEY,* EUGENIA M. JACKSON* AND ROBERT L. STRAUBE.* *Argonne Natl. Lab.*

11:15 **726.** Radioautographic studies of iron kinetics in the dog. EDWARD L. ALPEN, DORIS CRANMORE* AND A. K. DAVIS. *U. S. Naval Radiological Defense Lab.*

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton

Exhibit Manager's Office, Conrad Hilton, Exhibition Hall

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 505, Conrad Hilton, where owners may claim them on proper identification.

Friday Afternoon, April 19, 1:00 p.m.

Cardiac Output, Nervous Control

FRIDAY, 1:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Clarence N. Peiss

1:00 **727.** A tricarbocyanine dye for continuous recording of dilution curves in whole blood independent of variations in blood oxygen saturation. I. J. FOX, L. G. S BROOKER, D. W. HESELTINE AND H. E. ESSEX (intr. by F. C. MANN). *Mayo Fndn. and Clinic and Eastman Kodak Research Labs.*

1:15 **728.** Catheter artifacts in indicator dilution experiments. C. W. SHEPPARD. *Oak Ridge Natl. Lab.*

1:30 **729.** A continuous cardiac output recorder utilizing the Fick principle. ARTHUR C. GUYTON, CHARLES A. FARISH* AND RAY J. NICHOLS.* *Univ. of Mississippi.*

1:45 **730.** Effects of posture and atropine on cardiac output. ARNOLD M. WEISSLER,* JAMES J. LEONARD* AND JAMES V. WARREN. *Duke Univ.*

2:00 **731.** Effect of hemorrhage on distribution of cardiac output. LEO A. SAPIRSTEIN. *Ohio State Univ.*

2:15 **732.** Role of acetylcholine in cardiac automation. DAVID JENSEN (intr. by W. G. CLARK). *UCLA and VA Ctr.*

2:30 **733.** Autonomic balance in cardiac control. ROBERT F. RUSHMER. *Univ. of Washington.*

2:45 **734.** Question of a sympathetic cardioaccelerator center in the medulla. CLARENCE N. PEISS. *Stritch School of Medicine.*

3:00 **735.** Comparative speed formation, cardio-vascular and motor conditioning. TERESA PINTO.* J. E. NEWTON* AND W. HORSLEY GANTT. *Univ. of Chile and Johns Hopkins Univ.*

Blood, Cell Metabolism

FRIDAY, 1:00 P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: L. B. Jaques

1:00 **736.** Properties of turtle hemoglobins. J. RAUL RAMIREZ AND HERBERT C. DESSAUER (intr. by THOMAS HERNANDEZ). *Louisiana State Univ.*

1:15 **737.** Effect of acetylphenylhydrazine on myoglobin concentration. WILLARD R. FAULKNER* AND FRANK R. BLOOD. *Vanderbilt Univ.*

1:30 **738.** Measurement of CO in blood and production of CO by degradation of hemin. W. S. BLAKEMORE, G. D. LUDWIG, R. E. FORSTER AND D. L. DRABKIN (intr. by I. S. RAVDIN). *Univ. of Pennsylvania.*

1:45 **739.** Extractable heparin level in rat tissues. FRANK C. MONKHOUSE AND RUTH MACKNESON.* *Univ. of Toronto.*

2:00 **740.** Absorption of Cr-51 tagged erythrocytes from the peritoneal cavity. D. B. ROCHLIN, W. S. BLAKEMORE AND A. CARY (intr. by JONATHAN E. RHOADS). *Univ. of Pennsylvania.*

2:15 **741.** Tissue hematocrits of normal, nembutalized, splenectomized and nembutalized-splenectomized mice. JULIUS J. FRIEDMAN (intr. by K. WASSERMAN). *Tulane Univ.*

2:30 **742.** Sickling of erythrocytes with I-A electrophoretic hemoglobin pattern. I. R. SCHWARTZ, JEAN ATWATER, EVALYN REPPLINGER AND L. M. TOCANTINS (intr. by W. J. SNAPE). *Jefferson Med. College.*

2:45 **743.** Apparent isotonicity of cell fluid in boiled tissues. JOHANNES W. APPELBOOM (intr. by PETER K. KNOEFEL). *Univ. of Louisville.* (Pharmacol.)

3:00 **744.** Titration curves of human epidermis in relation to age. NORMAN R. JOSEPH, FRANCOIS BOURLIERE* AND ROBERT MOLIMARD.* *Univ. of Paris, France.* (Biochem.)

3:15 **745.** Age differences in cellular metabolism of various tissues of rats. C. H. BARROWS, JR.,* M. J. YIENGST,* N. W. SHOCK AND B. F. CHOW.* *Natl. Heart Inst., Baltimore City Hosps. and Johns Hopkins Univ.*

3:30 **746.** Mechanism of glucose entry into yeast cells. JAY BOYD BEST (intr. by C. AJMONE-MARSAN). *Walter Reed Army Inst. of Research.*

Electrolytes

FRIDAY, 1:00 P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Sid Robinson

1:00 **747.** Experiences with dual channel ultramicro flame photometer. PHYLLIS A. BOTT. *Woman's Med. College of Pennsylvania.* (Biochem.)

1:15 **748.** Responses of mammals to partial depletion of extracellular electrolytes. WYCLIFFE WIGHT* AND ROBERT E. SEMPLE. *Queen's Univ.*

1:30 **749.** Effect of extra-cellular pH on muscle electrolytes. TERENCE A. ROGERS* AND WALLACE O. FENN. *Univ. of Rochester.*

1:45 **750.** Chemical and electrocardiographic effects of alkali metals. T. E. BENNETT, M. E. BENDER AND R. TARAIL (intr. by F. R. GRIFFITH). *Roswell Park Mem. Inst.*

2:00 **751.** Antagonistic effect of acetazolamide and desoxycoticosterone on renal electrolyte excretion in the normal and adrenalectomized rat. A. BURKS,* J. SCHILLER AND M. KENNEY.* *VA Hosp., Manhattan.*

2:15 **752.** Body sodium and potassium in rats receiving increased dietary sodium chloride. JANET LEMLEY-STONE,* WILLIAM J. DARBY* AND GEORGE R. MENEELY. *Thayer VA Hosp. and Vanderbilt Univ.*

2:30 **753.** Secretion of hypertonic solutions in marine birds. KNUT SCHMIDT-NIELSEN, C. B. JÖRGENSEN* AND H. OSAKI.* *Duke Univ.*

2:45 **754.** Epinephrine-induced glycogenolysis and potassium loss in the isolated perfused liver. ALBERT V. CRAIG, JR (intr. by JOHN R. MURLIN). *Univ. of Rochester.*

3:00 **755.** A polysaccharide obtained from preparations of isolated calf thymus nuclei. IRVING L. SCHWARTZ AND SHINJI ITOH.* *Rockefeller Inst.*

3:15 **756.** Sodium excretion in hormonal hypertension. F. DEL GRECO,* G. M. C. MASSON, A. C. CORCORAN AND I. H. PAGE. *Cleveland Clin.*

Respiration: General

FRIDAY, 1:00 P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: Wallace O. Fenn

1:00 **757.** Effects of .08 and .8 atmospheres of inspired pO_2 upon cerebral hemodynamics at a "constant" alveolar pCO_2 of 43 mm Hg. J. TURNER, C. J. LAMBERTSEN, S. G. OWEN, H. WENDEL AND H. CHIODI (intr. by JAMES E. ECKENHOFF). *Univ. of Pennsylvania.*

1:15 **758.** Respiratory effects of .08 and .8 atmospheres of inspired pO_2 at a "constant" alveolar pCO_2 of 43 mm Hg. C. J. LAMBERTSEN, H. WENDEL,* H. CHIODI* AND S. G. OWEN.* *Univ. of Pennsylvania.*

1:30 **759.** Role of altered pulmonary hemodynamics in the reflex tachypnea of multiple minute pulmonary embolism. ALAN D. HORRES* AND THEODORE BERNTHAL. *Med. College of South Carolina.*

1:45 **760.** Effect of second-stage lobectomy on pulmonary function of dogs. M. T. LATEGOLA, W. H. MASSION AND J. A. SCHILLING (intr. by A. N. TAYLOR). *Univ. of Rochester and Oklahoma Univ.*

2:00 **761.** Rapid evaluation of basic functions of lung immediately after thoracotomy. JOHN F. PERKINS, JR., JAMES B. HUFFER,* WILLIAM E. ADAMS,* JOHN R. BENFIELD* AND JOAN S. BYRNE.* *Univ. of Chicago.*

2:15 **762.** Respiratory effects of pneumothorax. ALLAN HEMINGWAY AND DANIEL H. SIMMONS.* *Univ. of California Med. Ctr.*

2:30 **763.** Effects of reduced alkali reserve in dogs and humans. F. E. NOE AND J. NYBOER (intr. by DANIEL A. MCGINTY). *Harper Hosp.*

2:45 **764.** Breaking points of two breath holds separated by a single inspiration. S. M. CAIN (intr. by F. N. CRAIG). *Army Chemical Ctr.*

3:00 **765.** Estimation of work done on lungs during breathing. ARTHUR B. OTIS. *Univ. of Florida.*

3:15 **766.** Energy cost of breathing determined with a simplified technique. R. G. BARTLETT, JR. AND HEINZ SPECHT. *Natl. Insts. of Health.*

3:30 **767.** Mechanism of the cough reflex. ROBERT J. WEIR, JR. (intr. by IVOR CORNMAN). *Hazelton Labs.*

Muscle Action Potentials, Stretch

FRIDAY, 1:00 P.M.—CONRAD HILTON, UPPER TOWER ROOM

Chairman: Robert W. Ramsey

1:00 **768.** Intracellular recording from smooth muscle cells of cat intestine. NICK SPERELAKIS* AND C. LADD PROSSER. *Univ. of Illinois.*

1:15 **769.** Intracellular potential vs. trans-

membrane potential of muscle cells. DEXTER M. EASTON. *Florida State Univ.*

1:30 **770.** Membrane potential of skeletal muscle fibers with large-size sucrose insulated micropipettes. PHILIP W. DAVIES. *Johns Hopkins Univ.*

1:45 **771.** Membrane potential changes during activation of smooth muscle. EDWIN E. DANIEL (intr. by JAMES G. FOULKS). *Univ. of British Columbia.* (Pharmacol.)

2:00 **772.** Inhibitory potentials from crustacean muscles. G. HOYLE* AND C. A. G. WIERSMA. *California Inst. of Technology.*

2:15 **773.** "Site of origin" of repetitive responses during veratrine after-discharge. GEORGE B. FRANK (intr. by B. DELISLE BURNS). *McGill Univ.*

2:30 **774.** Neuromuscular tension states in persons without complaints: evaluation of electromyograms in health. EDMUND JACOBSON. *Lab. for Clin. Physiology, Chicago.*

2:45 **775.** Summation and tetanus in postmortem human heart muscle. EUGENE A. LENTINI,* WILLIAM C. ULLRICK* AND SHELDON C. SOMMERS. *Boston Univ. School of Medicine.* (Pathol.)

3:00 **776.** Immediate effects of stretch on muscle contractility. ROBERT S. ALEXANDER. *Albany Med. College.*

3:15 **777.** Mechanical properties of stretch reflex. ARTHUR C. BROWN (intr. by ALLEN M. SCHER). *Univ. of Washington School of Medicine.*

Adrenal Cortex

FRIDAY, 1:00 P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: Fred Elmadjian

1:00 **778.** Metabolism of C^{14}-4-Cortisol in the dog heart-lung preparation. RANDALL H. TRAVIS, KATHRYN BALLARD, NEIL SOLOMON AND JOHN BUKOVNIK (intr. by REGINALD SHIPLEY). *Western Reserve Univ.*

1:15 **779.** Enhanced oxidation of carbohydrate in adrenalectomized rats studied with 2-C^{14} pyruvate. WILLIAM W. WINTERNITZ* AND DANIEL L. KLINE. *Yale Med. School.*

1:30 **780.** Corticoid output of human adrenal. JAMES D. HARDY AND M. DON TURNER.* *Univ. of Mississippi Med. Ctr.*

1:45 **781.** Sodium and potassium excretion after injection of aldosterone into renal artery. WILLIAM F. GANONG, PATRICK J. MULROW AND GEORGE W. HOLLINGER (intr. by L. L. BENNETT). *Univ. of California Med. School and Stanford Univ. School of Medicine.*

2:00 **782.** Renal response to Diamox at several intervals after adrenalectomy and effect of DCG. DONALD A. OLEWINE* AND J. H. PERLMUTT. *Univ. of North Carolina School of Medicine.*

2:15 **783.** Effect of reserpine on stress response of adrenalectomized animals. MAURICE S. GOLDSTEIN AND ESTELLE R. RAMEY. *Univ. of Chicago and Georgetown Univ. School of Medicine.*

2:30 **784.** Human urinary steroid excretion as modified by diet and sodium chloride. S. F. MAROTTA AND S. G. STOLPE (intr. by F. SARGENT II). *Univ. of Illinois.*

2:45 **785.** Plasma and urine 17-hydroxycorticosteroid and urine 17-ketosteroid levels in man during acclimatization to high altitude. P. S. TIMIRAS, N. PACE* AND C. A. HWANG.* *Univ. of California and White Mountain Research Station.* (Pharmacol.)

3:00 **786.** Antihistaminics in prevention of acute adrenal failure. CARLETON H. BAKER* AND JOHN W. REMINGTON. *Med. College of Georgia.*

3:15 **787.** Endogenous ADH production and hydrocortisone release. ROGER K. MCDONALD, HENRY N. WAGNER, JR.* AND VIRGINIA K. WEISE.* *Natl. Inst. of Mental Health and Natl. Heart Inst.*

3:30 **788.** ACTH discharge from adenohypophysis following decerebration. GEORGE SAYERS AND MARION A. SAYERS.* *Western Reserve Univ.*

PAPERS READ BY TITLE

789. Sodium theory and transmembrane metabolism (phospholipid splitting). REINHARD H. BEUTNER. *Des Moines Still College.*

790. Chlorpromazine-induced convulsions. CARL F. ESSIG AND W. W. CARTER.* *USPHS Hosp., Lexington, Ky.*

791. Isolation and identification of chloralurethane glucuronide from human urine.

ANTHONY J. GLAZKO AND WESLEY A. DILL.* *Parke, Davis and Co.*

792. Heat production in relation to heat tolerance in cattle. H. H. KIBLER (intr. by H. E. DALE. *Univ. of Missouri.*

793. Production of thoracic duct lymphocytosis in the monkey by administration of reserpine. W. O. REINHARDT. *Univ. of California School of Medicine.*

794. Release of histamine, bradykinin and other pharmacologically active substances from burnt rat's skin. M. ROCHA E SILVA (intr. by S. R. ROSENTHAL). *Univ. of Illinois College of Medicine.*

795. Mural fenestrations induced by mechanical factors. SIMON RODBARD. *Univ. of Buffalo.*

796. Action of dihydrocodeine upon fetal respiration. FRANKLIN F. SNYDER. *Harvard Med. School.*

797. Interdependence among body water, water diuresis and osmotic load in man. G. N. WOGAN,* R. E. JOHNSON AND F. SARGENT II. *Univ. of Illinois.*

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS

Forty-eighth Annual Meeting[1]

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 15, 1:30 p.m.

Carbohydrate Metabolism—Glycolytic and Related Reactions

MONDAY, 1:30 P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: C. F. Cori

1:30 **798.** Equilibrium studies of the phosphoglucomutase reaction. J. B. SIDBURY, JR.* AND V. A. NAJJAR. *Johns Hopkins Univ. Med. School.*

1:45 **799.** Crystallization and physical properties of bovine liver aldolase. R. J. PEANASKY* AND H. A. LARDY. *Univ. of Wisconsin.*

2:00 **800.** Influence of pH on kinetics of the lactic dehydrogenase reaction. A. D. WINER* AND G. W. SCHWERT. *Duke Univ. School of Medicine.*

2:15 **801.** Liver lactic dehydrogenase—further inhibition studies. J. N. BAPTIST* AND C. S. VESTLING. *Univ. of Illinois.*

2:30 **802.** Incorporation of the carbon of formaldehyde into lactic acid by Propionibacterium arabinosum. F. W. LEAVER (intr. by J. H. JONES). *Univ. of Pennsylvania School of Veterinary Medicine.*

2:45 **803.** Pasteur and Crabtree effects. R. WU* AND E. RACKER. *Public Health Research Inst., New York City.*

3:00 **804.** A Pasteur effect in a reconstructed system. S. GATT (intr. by S. RATNER). *Public Health Research Inst., New York City.*

3:15 **805.** Glucose inhibition of respiration in the developing retina. L. H. COHEN (intr. by C. A. NICHOL). *Roswell Park Memorial Inst.*

3:30 **806.** Phosphorylation of acetol by homogenates of rat liver. O. Z. SELLINGER AND O. N. MILLER. *Tulane Univ. School of Medicine.*

3:45 **807.** Glucose catabolism pathways in rat brain. D. DI PIETRO* AND S. WEINHOUSE. *Lankenau Hosp. Research Inst. and Inst. for Cancer Research.*

Cytochemistry

MONDAY, 1:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: V. R. Potter

1:30 **808.** Lipoprotein complex, nucleic acids and other constituents of bovine spermatozoa. D. T. MAYER, F. MADERA-ORSINI* AND R. E. BERRY.* *Univ. of Missouri.*

1:45 **809.** Destruction of ascites tumor nuclei by heparin. NOME BAKER, M. TUBIS AND E. D. HUDACK (intr. by S. ROBERTS). *Univ. of California Med. Ctr., and VA Hosp., Cleveland.*

2:00 **810.** Incorporation of glycine-1-C^{14} into proteins and nucleic acids of liver and hepatoma nuclei. J. L. IRVIN, JEAN ROTHERHAM,*

[1] *Program Committee:* E. H. STOTZ, Chairman; A. L. DOUNCE, L. L. MILLER, W. W. WESTERFELD, H. H. WILLIAMS, R. F. WITTER.

ELINOR MOORE IRVIN AND D. J. HOLBROOK.* *Univ. of North Carolina.*

2:15 **811.** RNA biosynthesis in rat liver homogenates. J. H. SCHNEIDER* AND VAN R. POTTER. *Univ. of Wisconsin.*

2:30 **812.** In situ interconversions of intramitochondrial nucleotides. B. C. PRESSMAN AND JEANNE LANGE (intr. by L. ANDERSON). *Univ. of Wisconsin.*

2:45 **813.** Breakdown of particulates from rat liver. H. TARVER AND A. KORNER.* *Univ. of California School of Medicine.*

3:00 **814.** Effect of specific inhibitors of acid phosphatase on oxidation of Krebs cycle acids by rat liver "mitochondria". B. AXELROD AND GRACE S. KILSHEIMER.* *Purdue Univ.*

3:15 **815.** Action of carbon tetrachloride on liver mitochondria. W. F. BRIDGERS,* D. ABELE* AND F. E. HUNTER, JR. *Washington Univ.*

3:30 **816.** Swelling of mitochondria produced by CCl_4. SASHA MALAMED, MARILYN LITTERIA AND R. O. RECKNAGEL (intr. by J. M. WERLE). *Western Reserve Univ. School of Medicine.* (Physiol.)

3:45 **817.** Effects of CCl_4 on enzyme systems of rat liver mitochondria. R. O. RECKNAGEL AND D. D. ANTHONY (intr. by F. MAUTZ). *Western Reserve Univ. School of Medicine.* (Physiol.)

4:30 **818.** Structure and function of mitochondria in irreversible hemorrhagic shock. H. HIFT AND J. G. STRAWITZ (intr. by W. H. MCSHAN). *Univ. of Wisconsin Med. School.*

4:15 **819.** Some adsorptive and catalytic properties of testicular microsomes. W. LYNN, ROSE BROWN AND J. MULLINS (intr. by F. BERNHEIM). *Duke Univ. School of Medicine.*

Amino Acid Metabolism I

MONDAY, 1:30 P.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: W. E. KNOX

1:30 **820.** Some characteristics of rat kidney 5-hydroxytryptophan decarboxylase. J. A. BUZARD,* PRISCILLA D. NYTCH* AND M. F. PAUL. *Eaton Labs.*

1:45 **821.** Induced synthesis of tryptophan peroxidase in rat liver slices. M. CIVEN* AND W. E. KNOX. *Harvard Med. School and New England Deaconess Hosp.*

2:00 **822.** Reactivity of tryptophan analogues with a tryptophan-specific enzyme. N. SHARON* AND F. LIPMANN. *Massachusetts Gen. Hosp. and Harvard Med. School.*

2:15 **823.** Enzymatic conversion of phenylalanine to tyrosine. S. KAUFMAN. *Natl. Insts. of Health.*

2:30 **824.** Purification and properties of tyrosine activating enzyme. R. SCHWEET. *California Inst. of Technology.*

2:45 **825.** Species variation in picolinate and quinolinate formation from 3-hydroxyanthranilate by liver extracts. R. J. SUHADOLNIK,* C. O. STEVENS,* L. M. HENDERSON AND L. V. HANKES. *Univ. of Illinois and Brookhaven Natl. Lab.*

3:00 **826.** Carboxyl- and ring-labeled 3-hydroxyanthranilic acid. A. H. MEHLER AND E. L. MAY.* *Natl. Insts. of Health.*

3:15 **827.** L-kynurenine hydroxylase. Y. SAITO,* O. HAYAISHI, S. ROTHBERG* AND S. SENOH.* *Natl. Insts. of Health.*

3:30 **828.** Isolation and determination of urinary hydroxykynurenine. R. R. BROWN (intr. by E. C. MILLER). *Univ. of Wisconsin Med. School.*

3:45 **829.** Hippuric acid excretion in man following small doses of benzoate. H. C. ELLIOTT, JR.* AND H. WU. *Med. College of Alabama.*

4:00 **830.** Effect of glycocyamine on noncollagenous protein levels of rat muscle. R. M. BOCEK,* C. H. BEATTY, R. D. PETERSON, H. H. DIXON* AND E. S. WEST. *Univ. of Oregon Med. School.*

4:15 **831.** Separation of catecholamines from catechol acids by alumina. W. DRELL. *Univ. of California Med. Ctr. and VA Ctr.*

Physicochemical Methods

MONDAY, 1:30 P.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: J. Gergely

1:30 **832.** Chromatographic separation of acidic proteins on weakly acid cation exchange resins. K. SCHMID AND MARGARET B. MACNAIR.* *Massachusetts Gen. Hosp. and Harvard Med. School.*

1:45 **833.** Separation of mixtures on basis of molecular size. L. C. CRAIG, T. P. KING* AND A. STRACHER.* *Rockefeller Inst.*

2:00 **834.** Macromolecular properties of isomeric chondroitin sulfates. M. B. MATHEWS. *Univ. of Chicago and LaRabida Jackson Park Sanitarium.*

2:15 **835.** Potentialities of electrophoresis

in plastic foam arranged in contiguous segments. H. M. DAVIDSON (intr. by S. J. THANNHAUSER). *Tufts Univ. School of Medicine.*

2:30 **836.** A new method of preparative electrophoresis. M. BIER. *Fordham Univ.*

2:45 **837.** Effect of temperature on velocities of electromigration and on electroosmosis. H. J. MCDONALD AND E. W. BERMES, JR.* *Grad. School and Stritch School of Medicine, Loyola Univ.*

3:00 **838.** Effects of various plasma fractions on electrophoretic mobility of emulsified neutral fat. H. C. MENG,* J. A. YOUNG,* H. H. SHOULDERS, JR.* AND J. B. YOUMANS. *Vanderbilt Univ. Med. School.* (Nutr.)

3:15 **839.** Moving boundary and paper electrophoresis studies on binding of human serum proteins with metal ions. H. A. LILLEVIK, H. M. LEDUC, D. T. EWING AND P. F. MORSE (intr. by J. L. FAIRLEY). *Michigan State Univ. and Harper Hosp.*

3:30 **840.** Electrophoresis of bovine plasma albumin in the presence of thiocyanate ion and in 2 M urea. K. AOKI* AND J. F. FOSTER. *Purdue Univ.*

3:45 **841.** Molecular parameters of cardiac myosin. J. GERGELY AND H. KOHLER.* *Massachusetts Gen. Hosp. and Harvard Med. School.*

4:00 **842.** Relationships of macroglobulins to their monomer units. H. F. DEUTSCH AND JANE I. MORTON.* *Univ. of Wisconsin.*

4:15 **843.** Effects of perchloric acid upon the electrophoretic and chemical composition of human orosomucoid. H. E. WEIMER AND E. H. RICE (intr. by C. F. PAIT). *Univ. of California Med. Ctr.* (Immunol.)

Enzymes—General

MONDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 17

Chairman: H. A. Lardy

1:30 **844.** Some new autotrophic hydrogen utilizing bacteria. M. DWORKIN* AND J. W. FOSTER. *Univ. of Texas.*

1:45 **845.** Production of a hyaluronidase by a soil bacteria. R. BRUNISH AND J. FINDLEY (intr. by J. NYC). *Univ. of California Med. Ctr.*

2:00 **846.** Purification and characterization of amylomaltase induced in Escherichia coli. H. WIESMEYER* AND M. COHN. *Washington Univ. School of Medicine.*

2:15 **847.** A dextran-hydrolyzing enzyme from intestinal mucosa. G. A. ADROUNY,* W. L. BLOOM* AND A. E. WILHELMI. *Emory Univ.*

2:30 **848.** Reaction mechanism and substrate specificity of a fungal cellulase system. J. H. HASH AND K. W. KING (intr. by A. E. SCHAEFER). *Virginia Agricultural Expt. Station.* (Nutr.).

2:45 **849.** Extra - pancreatic, extra - salivary amylase in the rat. R. L. MCGEACHIN AND J. R. GLEASON (intr. by J. F. TAYLOR). *Univ. of Louisville School of Medicine.*

3:00 **850.** Serum TPN-specific enzymes in liver disease. S. K. WOLFSON, JR. AND H. G. WILLIAMS-ASHMAN (intr. by P. TALALAY). *Univ. of Chicago.*

3:15 **851.** Adenine transaminase. S. A. ARMENTROUT* AND E. GOLDWASSER. *Univ. of Chicago.*

3:30 **852.** Crystalline 5′-adenylic acid deaminase. YA-PIN LEE (intr. by W. H. PETERSON). *Univ. of Wisconsin.*

3:45 **853.** Rat liver xanthine oxidase activity in molybdenum deficiency. D. A. RICHERT AND W. W. WESTERFELD. *State Univ. of New York College of Medicine.*

4:00 **854.** Progress on purification and properties of DDT-dehydrochlorinase. H. LIPKE AND C. W. KEARNS (intr. by R. E. JOHNSON). *Univ. of Illinois.*

4:15 **855.** Characterization of some sulfate acceptor enzymes. J. D. GREGORY AND Y. NOSE.* *Massachusetts Gen. Hosp.*

Lipid Chemistry

MONDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 18

Chairman: M. M. Rapport

1:30 **856.** Characterization of organic acids by microdiffusion. L. M. MARSHALL. *Robert A. Taft Sanitary Engineering Center, Cincinnati.*

1:45 **857.** Trimethylamine - yielding compound (TMA-Y) produced from choline in rat liver preparations. H. B. LOFLAND,* H. M. SALEM* and C. ARTOM. *Bowman Gray School of Medicine.*

2:00 **858.** Paper chromatography of biologically active tissue cephalins. V. P. SKIPSKI* AND M. M. RAPPORT. *Sloan-Kettering Inst. for Cancer Research and N. Y. State Dept. of Health.*

2:15 **859.** Chromatographic separation of acetone soluble lipides. D. J. HANAHAN AND E. J. BARRON.* *Univ. of Washington.*

2:30 **860.** Partition of tissue phospholipides on basis of the solubility properties of their phosphorus - containing saponification products. G. SCHMIDT AND W. A. SPENCER.* *Boston Dispensary and Tufts Univ. School of Medicine.*

2:45 **861.** Isolation of phosphatidyl inositol from peas. A. C. WAGENKNECHT* AND H. E. CARTER. *Univ. of Illinois.*

3:00 **862.** Microspectrophotometric determination of inositol in tissues and lipide hydrolysates. F. N. LEBARON,* J. FOLCH AND E. E. ROTHLEDER.* *McLean Hosp. and Harvard Med. School.*

3:15 **863.** Preparation and isolation of fatty acids randomly labelled with C^{14}. H. SCHLENK AND H. K. MANGOLD (intr. by W. F. GEDDES). *Univ. of Minnesota.*

3:30 **864.** C- and N-terminal amino acids of human serum lipoproteins. B. SHORE (intr. by W. K. HALL). *Univ. of California and Med. College of Georgia.*

3:45 **865.** Role of calcium and sulphydryl groups in pancreatic lipase. E. D. WILLS (intr. by H. B. PIERCE). *Univ. of Vermont College of Medicine.*

4:00 **866.** Latent period of pancreatic esterase activity. E. C. GJESSING. *Univ. of Vermont College of Medicine.*

4:15 **867.** Study of lipase assays. A. L. BABSON AND SYLVIA MALAMENT (intr. by G. H. MANGUN). *Warner-Chilcott Research Labs.*

Exhibits

Conrad Hilton, Exhibition Hall

Monday–Thursday, April 15–18, 8:45 A.M.–6:00 P.M.
Friday, April 19, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 569.

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton
Exhibit Manager's Office, Conrad Hilton, Exhibition Hall

Tuesday Morning, April 16, 9:00 a.m.

Symposium: Molecular Heterogeneity of Hemoglobin

TUESDAY, 9:00 A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: D. L. DRABKIN

9:00 **868.** Chairman's introductory remarks. D. L. DRABKIN. *Univ. of Pennsylvania.*

9:10 **869.** Interpretation of electrophoretic, solubility and denaturation data in the study of hemoglobin differences. H. A. ITANO. *Natl. Inst. of Arthritis and Metabolic Diseases.*

9:40 **870.** *Discussion:* Titrable sulfhydryl groups and structure of hemoglobins. M. MURAYAMA. *Univ. of Pennsylvania.*

9:50 **871.** Distribution and significance of minor hemoglobin components of normal human blood. H. G. KUNKEL. *Rockefeller Inst. for Med. Research.*

10:20 **872.** *Discussion:* Some observations on the amino acid composition of human hemoglobins. W. H. STEIN. *Rockefeller Inst. for Med. Research.*

10:30 **873.** Column chromatography of human hemoglobins. M. MORRISON. *Univ. of Rochester School of Medicine and Dentistry.*

11:00 **874.** *Discussion:* Physical and chemical studies on horse globin components. D. B. SMITH. *Natl. Research Council, Canada.*

11:10 **875.** *Hemoglobinopathies.* W. W. ZUELZER. *Children's Hosp. of Michigan.*

Enzymes—Reactive Sites and Structure; Analytical

TUESDAY, 9:00 A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: C. B. Anfinsen, Jr.

9:00 **876.** Catalytic activity of carboxypeptidase - degraded aldolase. E. R. DRECHSLER (intr. by M. O. SCHULTZE). *Univ. of Minnesota.*

9:15 **877.** Reactive site of amine oxidases. E. A. ZELLER, J. BARSKY,* L. A. BLANKSMA* AND J. C. LAZANAS.* *Northwestern Univ. Med. School.*

9:30 **878.** Chromatography of mouse pancreas ribonucleases. G. A. MORRILL* AND S. R. DICKMAN. *Univ. of Utah College of Medicine.*

9:45 **879.** Positions of the disulfide bridges in ribonuclease. D. H. SPACKMAN,* S. MOORE AND W. H. STEIN. *Rockefeller Inst. for Med. Research.*

10:00 **880.** Amino acid sequences in ribonuclease. C. H. W. HIRS. *Rockefeller Inst. for Med. Research.*

10:15 **881.** Retention of enzymatic activity after action of trypsin on ribonuclease. M. UZIEL,* W. H. STEIN AND S. MOORE. *Rockefeller Inst. for Med. Research.*

10:30 **882.** Role of the N-terminal lysine in the antigenic structure of ribonuclease. R. K. BROWN, L. LEVINE* AND H. VAN VUNAKIS.* *New York State Dept. of Health.*

10:45 **883.** Partial purification and characterization of ribonuclease inhibitor from rat liver. J. S. ROTH. *Hahnemann Med. College.*

11:00 **884.** A fluorimetric method for the microdetermination of glutamic decarboxylase. IRENE P. LOWE, E. ROBINS AND GERALDINE A. SCHMALZ (intr. by O. H. LOWRY). *Washington Univ. School of Medicine.*

11:15 **885.** A rapid method for the quantitative assay of proteolytic enzymes. G. P. HESS,* E. I. CIACCIO* AND W. L. NELSON. *Cornell Univ.*

11:30 **886.** Stable solutions of trypsin. O. H. MÜLLER AND I. YAMANOUCHI.* *State Univ. of New York College of Medicine.* (Physiol.)

Chemistry of DNA and RNA; RNA Metabolism

TUESDAY, 9:00 A.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: M. Laskowski

9:00 **887.** Specificity of DNase II from thymus. ULLA-RIITTA LAURILA* AND M. LASKOWSKI. *Marquette Univ. School of Medicine.*

9:15 **888.** Denaturation of deoxyribonucleic acid. L. F. CAVALIERI AND B. H. ROSENBERG.* *Sloan-Kettering Inst.*

9:30 **889.** Separation of denatured DNA from native DNA. V. L. STEVENS* AND E. L. DUGGAN. *Univ. of California School of Medicine.*

9:45 **890.** Chromatographic studies on the transforming DNA of pneumococcus (PnDNA). H. B. PAHL,* S. M. BEISER* AND A. BENDICH. *Sloan-Kettering Inst. for Cancer Research and Columbia Univ.*

10:00 **891.** Minor constituents of ribonucleic acids. W. E. COHN. *Oak Ridge Natl. Lab.*

10:15 **892.** Some properties of ribonucleic acids. J. L. POTTER* AND A. L. DOUNCE. *Univ. of Rochester.*

10:30 **893.** Terminal groups of ribonucleic acids from yeast. A. M. CRESTFIELD* AND AND F. W. ALLEN. *Univ. of California School of Medicine.*

10:45 **894.** Interaction of polyadenylic and polyuridylic acids. R. C. WARNER. *New York Univ. College of Medicine.*

11:00 **895.** Phosphorolysis of oligoribonucleotides by polyribonucleotide phosphorylase. M. F. SINGER (intr. by H. D. BAERNSTEIN). *Natl. Insts. of Health.*

11:15 **896.** Polynucleotide phosphorylases. P. S. OLMSTED (intr. by R. H. MCCOY). *Univ. of Pittsburgh School of Medicine.*

11:30 **897.** Synthesis of RNA by polynucleotide phosphorylase. S. OCHOA, SANAE MII,* M. C. SCHNEIDER,* R. M. S. SMELLIE,* R. C. WARNER AND P. J. ORTIZ.* *New York Univ. College of Medicine.*

11:45 **898.** Incorporation of radioactive tracers into ribonucleoprotein particles of rat liver microsomes. H. T. SHIGEURA* AND E. CHARGAFF. *Columbia Univ.*

Hormones

TUESDAY, 9:00 A.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: C. L. Gemmill

9:00 **899.** Protein-binding of 2-hydroxy-5, 6,7,8-tetrahydro-naphthalene in fortified rat liver preparations. E. HECKER (intr. by J. A. MILLER). *Univ. of Wisconsin Med. School.*

9:15 **900.** Some properties of a liver T_3 and T_4 deiodinase system. W. R. RUEGAMER AND S. YUNIS.* *VA Hosp., Syracuse, and State Univ. of New York College of Medicine.*

9:30 **901.** Characterization of thyrotropin preparations from cation-exchange columns. MARY E. CARSTEN* AND J. G. PIERCE. *Univ. of California Med. Ctr.*

9:45 **902.** Biliary excretion and metabolism of radioactive L-thyroxine. E. V. FLOCK, J. H. GRINDLAY* AND J. L. BOLLMAN.* *Mayo Fndn.*

10:00 **903.** Enzymatic pathway from iodinated thyronines to their corresponding thyroacetic acids. K. TOMITA (intr. by C. GUBLER). *Univ. of Wisconsin.* (Nutr.)

10:15 **904.** An unidentified iodine compound formed by cell-free fractions of thyroid, salivary and other tissues. A. TAUROG, W. TONG* AND I. L. CHAIKOFF.* *Univ. of California.*

10:30 **905.** Effects of L-thyroxine on yeast respiration. W. MARX AND M. GUTENSTEIN.* *Univ. of Southern California School of Medicine.*

10:45 **906.** Short-term effects of growth hormone on oxidized and reduced liver coenzyme A in the rat. P. BARTLETT AND PAMELA GRIMMETT.* *E. B. Ford Inst. for Med. Research.*

11:00 **907.** Activity of growth hormone preparations assayed in alkali or acid. E. A. LAZO-WASEM* AND CLAIRE E. GRAHAM. *The Wilson Labs.*

11:15 **908.** Chromatography of luteinizing hormone (LH) on cellulose ion exchangers. D. N. WARD AND ELIZABETH E. NEU (intr. by A. C. GRIFFIN). *Univ. of Texas M. D. Anderson Hosp. and Tumor Inst.*

11:30 **909.** Fractionation of relaxin preparations by counter-current distribution. E. H. FRIEDEN AND N. W. LAYMAN.* *Tufts Univ. Med. School.*

11:45 **910.** Partial fractionation of parathyroid extract. D. J. MAHLER,* D. A. DAVIS* AND A. R. MCINTYRE. *Univ. of Nebraska College of Medicine.* (Pharmacol.)

Bile Acids and Cholesterol

TUESDAY, 9:00 A.M.—PALMER HOUSE, DINING ROOM 17

Chairman: E. A. Doisy

9:00 **911.** Influence of ascorbic acid on distribution of C_{14} labelled cholesterol in guinea pigs. R. J. ROBINSON, W. J. WEST AND W. M. BOOKER (intr. by E. G. WEIR). *Howard Univ. Med. School.* (Physiol.)

9:15 **912.** Mevalonic acid metabolism. L. D. WRIGHT. *Graduate School of Nutrition, Cornell Univ.*

9:30 **913.** Biosynthesis of cholesterol in the central nervous system. H. J. NICHOLAS (intr. by L. PETERS). *Univ. of Kansas Med. Ctr.* (Pharmacol.)

9:45 **914.** Effect of farnesol and squalene on cholesterol synthesis in rat liver. E. KARVINEN AND P. V. LAAKSO (intr. by D. NELSON). *Univ. of Illinois and Bauer and Black Co.* (Physiol.)

10:00 **915.** Conversion of tritiated lathosterol

to cholesterol by cell-free preparations of rat liver. ANN G. DAVIDSON,* ELINOR G. DULIT* AND I. D. FRANTZ, JR. *Univ. of Minnesota Med. School.*

10:15 **916.** Biologic disposition of dihydrocholesterol (DHC) in the rabbit. E. H. MOSBACH,* E. HALPERN,* D. HARRIS* AND F. E. KENDALL. *Goldwater Memorial Hosp. and Columbia Univ.* (Immunol.)

10:30 **917.** Oxidation of cholesterol and trihydroxycoprostane by in vitro systems. E. STAPLE AND M. W. WHITEHOUSE (intr. by C. S. ROSE). *Univ. of Pennsylvania School of Medicine.*

10:45 **918.** Formation of cholesterol in liver slices from biotin deficient rats. GERT M. JACOBSOHN* AND R. C. CORLEY. *Purdue Univ.*

11:00 **919.** Partial synthesis of new bile acids. S. L. HSIA* AND S. A. THAYER. *St. Louis Univ. School of Medicine.*

11:15 **920.** Quantitative studies of production of bile and bile acids in the rat. W. H. ELLIOTT. *St. Louis Univ. School of Medicine.*

11:30 **921.** Metabolism of 7-ketolithocholic acid-24-C^{14} in the rat. T. A. MAHOWALD,* M. W. YIN* AND E. A. DOISY. *St. Louis Univ. School of Medicine.*

11:45 **922.** Metabolites of hyodeoxycholic acid in surgically jaundiced rats. J. T. MATSCHINER,* R. L. RATLIFF* AND E. A. DOISY, JR. *St. Louis Univ. School of Medicine.*

Carbohydrate Metabolism—Krebs Cycle and Related Reactions

TUESDAY, 9:00 A.M.—PALMER HOUSE, DINING ROOM 18

Chairman: J. M. Orten

9:00 **923.** Estimation of citric acid and ketone bodies by the salicylaldehyde-acetone reaction. S. P. BESSMAN AND M. ANDERSON.* *Univ. of Maryland Med. School.*

9:15 **924.** Citric acid cycle in erythrocytes. R. DAJANI* AND J. M. ORTEN. *Wayne State Univ. College of Medicine.*

9:30 **925.** Effect of nephrectomy and parathyroid function on citrate disappearance in the rat. R. B. MEINTZER* AND S. FREEMAN. *Northwestern Univ. Med. School.* (Physiol.)

9:45 **926.** Oxaloacetate as a regulator of metabolism within the Krebs cycle. D. B. TYLER. *Univ. of Puerto Rico.* (Physiol.)

10:00 **927.** Metabolism of itaconic acid in liver mitochondria. J. ADLER (intr. by M. J. JOHNSON). *Univ. of Wisconsin.*

10:15 **928.** Malonate metabolism by mammalian tissues. H. I. NAKADA, BARBARA B. BRITTON AND J. B. WOLFE (intr. by D. R. DRURY). *Scripps Clinic and Research Fndn., and Univ. of Southern California School of Medicine.* (Physiol.)

10:30 **929.** Role of hydroxylamine in the carbon dioxide-activating enzyme system. B. K. BACHHAWAT,* F. P. KUPIECKI* AND M. J. COON. *Univ. of Michigan Med. School.*

10:45 **930.** Biosynthesis of β-hydroxy-β-methyl glutarate (HMG) in yeast extracts. J. J. FERGUSON, JR.* AND H. RUDNEY. *Western Reserve Univ. Med. School.*

11:00 **931.** Oxidative metabolism of Acetobacter peroxidans. S. W. TANENBAUM (intr. by B. F. ERLANGER). *Columbia Univ.*

11:15 **932.** Purification and properties of yeast isocitric lyase. J. A. OLSON (intr. by G. K. DAVIS). *Univ. of Florida.*

11:30 **933.** Bound biotin in oxalacetic carboxylase preparations. H. C. LICHSTEIN. *Univ. of Minnesota.*

Tuesday Afternoon, April 16, 1:30 p.m.

Protein Synthesis I

TUESDAY, 1:30 P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: L. L. Miller

1:30 **934.** Activation of amino acids in plant and animal tissues. J. W. DAVIS,* AUDREY N. BEST* AND G. D. NOVELLI. *Oak Ridge Natl. Lab.*

1:45 **935.** Amino acid incorporation into proteins of disrupted ribonucleoprotein particles. G. C. WEBSTER. *Ohio State Univ.*

2:00 **936.** Incorporation of C^{14}-ATP into soluble RNA isolated from 105,000 × g supernatant of rat liver. P. C. ZAMECNIK, MARY L. STEPHENSON,* J. F. SCOTT* AND M. B. HOAGLAND. *Massachusetts Gen. Hosp.*

2:15 **937.** Intermediate reactions in protein biosynthesis. M. B. HOAGLAND AND P. C. ZAMECNIK. *Massachusetts Gen. Hosp.*

2:30 **938.** A relation of RNA metabolism to protein synthesis. E. BOREK, ANN RYAN* AND T. D. PRICE.* *Columbia Univ.*

2:45 **939.** In vivo release of amino acids from an intact protein. H. W. RUMSFELD, JR., W. W. BURR, JR. AND D. S. WIGGANS (intr. by H. C. TIDWELL). *Univ. of Texas Southwestern Med. School.*

3:00 **940.** In vitro incorporation of leucine-1-C^{14} into the protein of liver mitochondria. M. V. SIMPSON, J. R. MCLEAN,* G. L. COHN* AND IRA K. BRANDT.* *Yale Univ.*

3:15 **941.** Degradation of ribonucleoprotein from rat liver. MARY L. PETERMANN AND MARY G. HAMILTON.* *Sloan-Kettering Inst. for Cancer Research.*

3:30 **942.** Transformation of ribonucleoprotein in an acellular preparation from rabbit reticulocytes. M. RABINOVITZ AND M. E. OLSON.* *Univ. of California School of Medicine.*

3:45 **943.** Speed of protein synthesis. R. B. LOFTFIELD (intr. by J. C. AUB). *Harvard Univ. and Massachusetts Gen. Hosp.* (Physiol.)

4:00 **944.** Demonstration of net plasma albumin synthesis in liver slices from normal and nephrotic rats. J. B. MARSH AND D. L. DRABKIN. *Univ. of Pennsylvania Graduate School of Medicine.*

4:15 **945.** Specific lesion of renal spillage of plasma albumin in experimental nephrosis. D. L. DRABKIN AND J. B. MARSH. *Univ. of Pennsylvania Graduate School of Medicine.*

Coenzymes—DPN, Co-A and Lipoic

TUESDAY, 1:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: B. Vennesland

1:30 **946.** Incorporation of deuterium into DPNH-X. JOSEPHINE O. MEINHART AND M. C. HINES (intr. by C. A. EVANS). *Univ. of Washington.* (Immunol.)

1:45 **947.** Exchange of hydrogen between reduced pyridine nucleotides and water. G. R. DRYSDALE (intr. by MILDRED COHN). *Washington Univ. School of Medicine.*

2:00 **948.** Utilization of hydrogen of substrates of pyridine-nucleotide-linked dehydrogenase in reductive biosyntheses. H. D. HOBERMAN. *Albert Einstein College of Medicine.*

2:15 **949.** Mechanism of pyridine nucleotide dependent dehydrogenases. JAN VAN EYS (intr. N. O. KAPLAN). *Johns Hopkins Univ.*

2:30 **950.** Activation of a bacterial DPNase by oxidation-reduction systems. E. R. STADTMAN. *Natl. Insts. of Health.*

2:45 **951.** Solubilization of pyridine-nucleotide enzymes of the glycosidase type from mammalian tissues. H. W. DICKERMAN AND F. E. STOLZENBACH (intr. by ARDA A. GREEN). *Johns Hopkins Univ.*

3:00 **952.** Enzymatic formation of acetyl pantetheine. GENE M. BROWN (intr. by L. G. WESSON). *Massachusetts Inst. of Technology.*

3:15 **953.** Enzymatic hydrolysis of the thiol ester bond of β-hydroxy-β-methylglutaryl coenzyme A (HMG CoA). E. E. DEKKER (intr. by A. A. CHRISTMAN). *Univ. of Michigan Med. School.*

3:30 **954.** Phosphoryl-S-coenzyme A: an intermediate in succinate activation. R. A. SMITH,* IRMA F. FRANK* AND I. C. GUNSALUS. *Univ. of Illinois.*

3:45 **955.** Lipoic acid-activating enzyme system. L. J. REED, F. R. LEACH,* M. KOIKE* AND M. E. LEVITCH.* *Clayton Fndn. for Research, Biochemistry Inst. and Univ. of Texas.*

4:00 **956.** Reactions of thioctic acid and

thioctamide catalyzed by the α-ketoglutaric dehydrogenase complex. D. R. SANADI AND R. L. SEARLS.* *Univ. of California School of Medicine.*

4:15 **957.** Some enzymatic reactions involving 6,8-dithioloctanoic (dihydrolipoic) acid and its acetoacetic thioester. G. I. DRUMMOND* AND J. R. STERN. *Western Reserve Univ.*

Purine Metabolism

TUESDAY 1:30 P.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: J. M. Buchanan

1:30 **958.** Inhibitors of de novo formyl glycinamide ribotide synthesis in pigeon liver extracts. W. BARG,* E. BOGGIANO,* N. SLOANE AND E. C. DE RENZO.* *American Cyanamid Co.*

1:45 **959.** Sequential blockade in adenine biosynthesis by a single mutational event in Escherichia coli. J. S. GOTS AND EDITH G. GOLLUB (intr. by M. G. SEVAG). *Univ. of Pennsylvania School of Medicine.*

2:00 **960.** 5-Amino-4-carboxy-imidazole ribotide, a new intermediate in purine biosynthesis. L. N. LUKENS* AND J. M. BUCHANAN. *Massachusetts Inst. of Technology.*

2:15 **961.** Incorporation of the imidazole carbon atom 2 of L-histidine into purines in bacteria. HELEN R. BOWSER* AND B. MAGASANIK. *Harvard Med. School.*

2:30 **962.** Transformylation and purine biosynthesis. L. WARREN (intr. by D. F. WAUGH). *Massachusetts Inst. of Technology.*

2:45 **963.** Metabolism of purine. M. P. GORDON,* ORSALIA INTRIERI* AND G. B. BROWN. *Sloan-Kettering Div. of Cornell Univ. Med. College.*

3:00 **964.** In vitro conversion of adenine-8-C^{14} to guanine by human leukocytes. J. SHAPIRA* AND R. J. WINZLER. *Univ. of Illinois College of Medicine.*

3:15 **965.** Utilization of 6-mercaptopurine by Streptococcus faecalis. M. E. BALIS AND DORRIS J. HUTCHISON.* *Sloan-Kettering Div. of Cornell Univ. Med. College.*

3:30 **966.** Isolation of a metabolic product of 6-mercaptopurine from human urine. GERTRUDE B. ELION AND G. H. HITCHINGS. *Wellcome Research Labs.*

3:45 **967.** Enzymatic methylation of 2,6-diaminopurine to 2-methylamino-6-aminopurine. C. N. REMY (intr. by W. W. WESTERFELD). *VA Hosp., Syracuse, and State Univ. of New York.*

4:00 **968.** Enzymatic synthesis of nucleotides of purine analogs. J. L. WAY* AND R. E. PARKS, JR. *Univ. of Wisconsin Med. School.* (Pharmacol.)

4:15 **969.** Uric acid studies in the chick embryo and chick. I. H. KRAKOFF,* D. A. KARNOFSKY, M. E. BALIS* AND CORINNE LACON.* *Sloan-Kettering Inst.* (Pharmacol.)

Lipid Metabolism I

TUESDAY, 1:30 P.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: S. Gurin

1:30 **970.** Metabolism of the O-phosphodiester of serine and ethanolamine in the turtle. P. AYENGAR* AND E. ROBERTS. *City of Hope Med. Ctr.*

1:45 **971.** Short-chain monoethenoid fatty acids as possible precursors in bacterial biosynthesis of cis-vaccenic acid. W. M. O'LEARY* AND K. HOFMANN. *Univ. of Pittsburgh School of Medicine.*

2:00 **972.** Enzyme substrate interaction in a flavoprotein system. ELIZABETH STEYN-PARVE* AND H. BEINERT. *Univ. of Wisconsin.*

2:15 **973.** Acetyl coenzyme A in the biosynthesis of fatty acids. E. B. TITCHENER* AND D. M. GIBSON. *Univ. of Wisconsin.*

2:30 **974.** Products of fatty acid synthesis by a soluble pigeon liver system. J. W. PORTER AND R. W. LONG.* *Univ. of Wisconsin and VA Hosp., Madison.*

2:45 **975.** Localization of a fatty acid-synthesizing system in pig liver. MIRIAM A. DERKS AND R. O. MOORE (intr. by J. B. BROWN). *Ohio State Univ.*

3:00 **976.** Cyclic nature of turnover curves. S. B. TOVE AND H. L. LUCAS (intr. by G. H. SATTERFIELD). *North Carolina Agricultural Expt. Station.*

3:15 **977.** Metabolism of an albumin-palmitate-C^{14} complex by diabetic rat liver slices. J. M. FELTS (intr. by A. CANZANELLI). *Tufts Univ. School of Medicine.* (Physiol.)

3:30 **978.** Disappearance time of unesterified fatty acid from rat blood. J. M. IACONO, M. I. GROSSMAN, S. L. KIRSCHNER, DONALD SCHEINER AND N. F. WITT (intr. by T. H. ALLEN). *U. S. Army Med. Nutrition Lab. and Univ. of Colorado.* (Physiol.)

3:45 **979.** Role of carbohydrate metabolism in fatty acid oxidation. E. J. MASORO AND J.

M. FELTS.* *Tufts Univ. School of Medicine.* (Physiol.)

4:00 **980.** Glycolysis and lipogenesis in fetal tissues during anoxia. D. D. HAGERMAN,* J. M. LORING,* D. B. VILLEE,* F. M. WELLINGTON* AND C. A. VILLEE. *Harvard Med. School.*

4:15 **981.** Effects of refeeding upon in vivo and in vitro lipogenesis. J. T. VAN BRUGGEN AND R. J. EMERSON.* *Univ. of Oregon Med. School.*

Aldonic and Uronic Acids; Mucopolysaccharides

TUESDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 14

Chairman: R. J. Winzler

1:30 **982.** A new and differentiating test for galacturonic acid. M. X. SULLIVAN AND S. A. AL-KASSAB.* *Georgetown Univ.*

1:45 **983.** Intermediates between 2-keto-3-deoxy-7-phosphoglucoheptonic acid (KDPH) and 5-dehydroquinic acid (DHQ). J. ROTHSCHILD (intr. by G. L. FOSTER). *Columbia Univ.*

2:00 **984.** Co-factor requirements in the conversion of 2-keto-3-deoxy-7-phosphoglucoheptonic acid (KDPH) to 5-dehydroquinic acid (DHQ). P. R. SRINIVASAN* AND D. B. SPRINSON. *Columbia Univ.*

2:15 **985.** Biosynthesis and metabolism of L-gulonolactone. P. G. DAYTON,* CAROLE EVANS,* J. KANFER* AND J. J. BURNS. *Natl. Insts. of Health and N. Y. Univ. Research Service.*

2:30 **986.** Ascorbic acid metabolism. P. C. CHAN,* L.-M. BABINEAU,* R. R. BECKER* AND C. G. KING. *Columbia Univ.*

2:45 **987.** Conversion of myo-inositol to glucuronic acid by a rat-kidney enzyme system. F. CHARALAMPOUS AND C. LYRAS.* *Univ. of Pennsylvania School of Medicine.*

3:00 **988.** Metabolism of glucuronic acid in vivo. F. EISENBERG, JR. *Natl. Insts. of Health.*

3:15 **989.** Enzymatic degradation of D-galacturonic and D-glucuronic acid. G. ASHWELL. *Natl. Insts. of Health.*

3:30 **990.** Chemical structure of β-heparin. R. W. JEANLOZ, P. J. STOFFYN* AND MONIQUE TRÉMÈGE.* *Massachusetts Gen. Hosp. and Harvard Med. School.*

3:45 **991.** Alkaline degradation of hyaluronate oligosaccharides. A. LINKER, P. HOFFMAN* AND K. MEYER. *Columbia Univ.*

4:00 **992.** Chemistry of chondroitinsulfuric acid B (β-heparin). J. A. CIFONELLI,* J. LUDOWIEG* AND A. DORFMAN. *Univ. of Chicago and LaRabida Jackson Park Sanitarium.*

4:15 **993.** Cation binding by chondroitin sulfate. S. FARBER* AND M. SCHUBERT. *New York Univ. College of Medicine.* (Pharmacol.)

Steroid Hormone Metabolism

TUESDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 18

Chairman: W. W. Westerfeld

1:30 **994.** Influence of alteration of structure on the steroid metabolism in tissue slices. J. H. U. BROWN AND ATALANTE ANASON.* *Emory Univ.* (Physiol.)

1:45 **995.** Evaluation of the blue tetrazolium reduction method as a measure of corticosteroid excretion. A. J. IZZO AND E. H. KEUTMANN (intr. by W. POMMERENKE). *Univ. of Rochester.* (Physiol.)

2:00 **996.** Metabolism of steroid hormones by extra-hepatic tissues and target organs. M. L. SWEAT, B. I. GROSSER,* C. C. NABORS* AND H. E. SWIM. *Univ. of Utah College of Medicine and Western Reserve Univ. School of Medicine.*

2:15 **997.** Metabolism of cortisol 4-C^{14} in humans. D. L. BERLINER AND MARTHA L. BERLINER (intr. by A. ZAFFARONI). *Univ. of Utah College of Medicine.*

2:30 **998.** Progesterone metabolism in eviscerated female rats bearing deciduoma. W. G. WIEST (intr. by L. T. SAMUELS). *Univ. of Utah College of Medicine.*

2:45 **999.** Role of progesterone as a precursor of human testicular androgens. T. A. VISCELLI, M. E. LOMBARDO AND P. B. HUDSON (intr. by W. M. SPERRY). *Columbia Univ.*

3:00 **1000.** Biosynthesis of estrone and progesterone in the pregnant mare. K. SAVARD, K. ANDREC,* B. W. L. BROOKSBANK,* C. REYNERI,* R. I. DORFMAN, R. D. H. HEARD,* R. JACOBS* AND S. S. SOLOMON.* *Worcester Fndn. for Exptl. Biology and McGill Univ.*

3:15 **1001.** Incubation of cholesterol-21-C^{14} with bovine adrenal tissue. F. M. GANIS, P. KURATH AND M. RADAKOVICH (intr. by J. J. MORTON). *Univ. of Rochester.* (Pathol.)

3:30 **1002.** Estrogen biosynthesis from cholesterol-4-C^{14} and acetate-1-C^{14} in the pregnant woman. H. WERBIN, J. PLOTZ, G. V. LEROY AND M. E. DAVIS (intr. by G. T. OKITA). *Argonne Cancer Research Hosp. and Univ. of Chicago.* (Pharmacol.)

3:45 **1003.** Metabolism of C_{19} steroids by

homogenates of kidney, heart, testes and prostate. C. D. KOCHAKIAN, BETTY R. CARROLL* AND BARBARA UHRI.* *Oklahoma Med. Research Fndn.*

4:00 **1004.** Excretion of an estriol-like metabolite following administration of 1,3,5(10), 16-estratetraen-3-ol. B. F. STIMMEL. *Rees-Stealy Clinic Research Fndn.*

4:15 **1005.** Metabolism of estriol-16-C^{14} in man. M. LEVITZ, JEAN R. SPITZER AND G. H. TWOMBLY (intr. by D. K. FUKUSHIMA). *New York Univ. College of Medicine.*

Biochemistry Society Business Meeting

TUESDAY, 4:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Program on page 446

Wednesday Morning, April 17, 9:00 a.m.

Protein Synthesis II

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: J. M. Luck

9:00 **1006.** Isolation of an extracellular protein from penicillin-inhibited Escherichia coli cells. R. C. SMITH* AND S. B. BINKLEY. *Univ. of Illinois School of Medicine.*

9:15 **1007.** Changes in the bacterial cell wall during growth. G. D. SHOCKMAN,* J. J. KOLB* AND G. TOENNIES. *Lankenau Hosp. Research Inst. and Inst. for Cancer Research.*

9:30 **1008.** Bacterial utilization of peptides. W. E. NUTTER AND D. C. SHELTON (intr. by R. F. KRAUSE). *West Virginia Univ.*

9:45 **1009.** Intracellular bacterial peptides. G. E. CONNELL AND R. W. WATSON (intr. by L. I. PUGSLEY). *Natl. Research Labs., Ottawa.*

10:00 **1010.** End-product control for formation of a biosynthetic enzyme W. MAAS AND L. GORINI.* *New York Univ. College of Medicine.*

10:15 **1011.** Accumulation of acid-soluble nucleotide compounds in an Escherichia coli mutant deprived of an essential amino acid. DORA B. GOLDSTEIN,* A. GOLDSTEIN AND BEVERLY J. BROWN.* *Stanford Univ.* (Pharmacol.)

10:30 **1012.** Incorporation of N^{15} into fibrinogen during induced nitrogen storage or loss. O. H. GAEBLER, RACHEL GLOVINSKY* AND TRIESTE VITTI.* *E. B. Ford Inst. for Med. Research.*

10:45 **1013.** Identification of specific milk proteins synthesized in the bovine mammary gland by C^{14} incorporation. B. L. LARSON AND D. C. GILLESPIE (intr. by R. JENNESS). *Univ. of Illinois.*

11:00 **1014.** Transfer of radioactivity between protein fractions of hen oviduct homogenate. R. W. HENDLER (intr. by E. A. PETERSON). *Natl. Insts. of Health.*

11:15 **1015.** Derivation of embryonic chick proteins. H. WALTER* AND H. R. MAHLER. *Indiana Univ.*

11:30 **1016.** Cytoplasmic particles as sites of specific protein synthesis. T. PETERS, JR. (intr. by C. V. Z. HAWN). *Mary Imogene Bassett Hosp.* (Pathol.)

11:45 **1017.** Free amino acid pool of human cells in tissue culture. K. A. PIEZ* AND H. EAGLE. *Natl. Insts. of Health.* (Immunol.)

Proteolytic Enzymes

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: E. L. Smith

9:00 **1018.** Distribution of proteolytic enzyme system of skin. J. GOLUBOW (intr. by W. S. MCELLROY). *Univ. of Pittsburgh School of Medicine.*

9:15 **1019.** Purification and interaction of proteinase C with a skin inhibitor. C. J. MARTIN (intr. by A. E. AXELROD). *Univ. of Pittsburgh School of Medicine.*

9:30 **1020.** Mechanism of conversion of plasma proteolytic enzyme precursor to the active enzyme. W. BAUMGARTEN, ROSE B. COLE AND MAUREL N. RICHARD (intr. by L. E. ARNOW). *Merck Sharp and Dohme Research Labs.*

9:45 **1021.** Proteolytic enzyme system of pancreas. L. WEIL AND MARIE TELKA.* *Eastern Regional Research Labs.*

10:00 **1022.** Action of carboxypeptidase on acetylated trypsin. I. E. LIENER AND R. C. WONG.* *Univ. of Minnesota.*

10:15 **1023.** Altered reactivity of prototropic groups in chymotrypsinogen. P. E. WILCOX (intr. by W. B. DANDLIKER). *Univ. of Washington.*

10:30 **1024.** Reduction of disulfide bonds in α-chymotrypsinogen. R. EGAN AND E. M. GROSS (intr. by B. J. JANDORF). *Army Chem. Ctr.*

10:45 **1025.** Acylation of enzymatic sites of chymotrypsin and trypsin. G. H. DIXON* AND H. NEURATH. *Univ. of Washington.*

11:00 **1026.** Anti-rennin and anti-chymotrypsin activity of serum. JACKLYN MELCHIOR AND R. SLIWINSKI.* *Loyola Univ.*

11:15 **1027.** Resistance of metal-ion complexes of conalbumin to digestion by chymotrypsin. P. R. AZARI* AND R. E. FEENEY. *Univ. of Nebraska.*

11:30 **1028.** A new pancreatic peptidase: carboxypeptidase-B. J. E. FOLK, J. A. GLADNER

AND K. LAKI (intr. by J. SENDROY, JR.). *Natl. Insts. of Health.*

11:45 **1029.** Sulfhydryl groups of crystalline papain. B. J. FINKLE* AND E. L. SMITH. *Univ. of Utah.*

Lipid Metabolism II

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: E. P. Kennedy

9:00 **1030.** Enzymatic determination of polyunsaturated fatty acids. J. MACGEE* AND F. H. MATTSON. *Procter and Gamble Co.* (Nutr.)

9:15 **1031.** Oxidation of choline to betaine aldehyde by rat liver mitochondria. D. R. STRENGTH. *St. Louis Univ. School of Medicine.*

9:30 **1032.** Effect of oxygen on lipid synthesis. W. E. M. LANDS (intr. by L. MILLER). *Univ. of Michigan.*

9:45 **1033.** Incorporation of acetate into fat by homogenates of mammary tissue from lactating rats. P. F. HIRSCH* AND P. L. MUNSON. *School of Dental Medicine and Med. School, Harvard Univ.*

10:00 **1034.** Incorporation of glycerol-1,3-C^{14} into triglycerides and phosphatides of human serum and serum lipoproteins. L. I. GIDEZ* AND H. A. EDER. *Brookhaven Natl. Lab. and State Univ. of New York College of Medicine.*

10:15 **1035.** Incorporation of P^{32}-orthophosphate into phosphatides of isolated rat liver mitochondria. G. V. MARINETTI, J. ERBLAND* AND M. ALBRECHT.* *Univ. of Rochester.*

10:30 **1036.** Chlorpromazine and azacyclonol and the in vitro labeling of phosphatides in brain preparations. W. L. MAGEE, E. T. PRITCHARD AND K. P. STRICKLAND (intr. by R. J. ROSSITER). *Univ. of Western Ontario.*

10:45 **1037.** Enzymatic synthesis of sphingomyelin. M. SRIBNEY* AND E. P. KENNEDY. *Univ. of Chicago.*

11:00 **1038.** Incorporation of meso-inositol-2-H^3 into phospholipids of slices of pancreas and brain cortex. L. E. HOKIN AND MABEL HOKIN.* *McGill Univ.*

11:15 **1039.** Metabolism of C^{14} myo-inositol in the rat. E. A. MOSCATELLI* AND J. LARNER. *Univ. of Illinois.*

11:30 **1040.** Inositol metabolism. B. W. AGRANOFF (intr. by G. M. BRIGGS). *Natl. Insts. of Health.* (Nutr.).

11:45 **1041.** Incorporation of galactose into galactolipids of brain tissue. R. M. BURTON,* MARY ANN SODD* AND R. O. BRADY. *Natl. Insts. of Health.*

Hemoglobin, Porphyrins and Bile Pigments

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: F. Haurowitz

9:00 **1042.** A simple procedure for determining equations of absorption spectra and concentration vs. absorbance curves. S. NATELSON AND S. E. NATELSON.* *Rockford Memorial Hosp., Rockford, Ill.*

9:15 **1043.** Basicity of porphyrins. S. ARONOFF. *Iowa State College.*

9:30 **1044.** Structural chemistry of ferrichrome. J. B. NEILANDS. *Univ. of California.*

9:45 **1045.** Reduction of ferritin iron by xanthine oxidase. S. GREEN* AND A. MAZUR. *Cornell Univ. Med. College and New York Hosp.*

10:00 **1046.** Hemins of beef heart muscle. J. L. CONNELLY,* M. MORRISON* AND E. STOTZ. *Univ. of Rochester.*

10:15 **1047.** Titratable sulfhydryl groups of fetal and homozygous C hemoglobins. M. MURAYAMA (intr. by H. A. SLOVITER). *Univ. of Pennsylvania Grad. School of Medicine.*

10:30 **1048.** Hemoglobin intermediates. H. A. ITANO AND ELIZABETH ROBINSON.* *Natl. Insts. of Health.*

10:45 **1049.** Effects of silver ions on oxygen equilibrium of hemoglobin. A. RIGGS (intr. by J. E. DAVIS). *Univ. of Texas.* (Physiol.)

11:00 **1050.** Oxygenation of bovine hemoglobin-dielectric studies. S. TAKASHIMA* AND R. LUMRY. *Univ. of Minnesota School of Chemistry.*

11:15 **1051.** The possibility that the heme is in a crevice in ferriperoxidase and ferricatalase. P. GEORGE AND R. L. J. LYSTER (intr. by D. R. GODDARD). *Univ. of Pennsylvania.*

11:30 **1052.** Pathways and rate of hemoglobin catabolism during experimental hemoglobinemia in swine. A. J. EMERY, JR., H. W. BALES, JR. AND H. E. PEARSE (intr. by R. F. WITTER). *Univ. of Rochester Atomic Energy Project.*

11:45 **1053.** An enzymatic defect in constitutional nonhemolytic hyperbilirubinemia (CNH) in the rat. G. M. GRODSKY AND J. V. CARBONE (intr. by H. A. HARPER). *Univ. of California School of Medicine.*

Pyrimidine Metabolism

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, DINING ROOM 14

Chairman: D. W. Wilson

9:00 **1054.** Precursors of bases of RNA and DNA studied in tissue culture. N. P. SALZMAN AND E. D. SEBRING (intr. by B. BLOOM). *Natl. Insts. of Health.*

9:15 **1055.** Origin of deoxyribose in the DNA of E. coli. MARILYN R. LOEB* AND S. S. COHEN. *Children's Hosp. of Philadelphia and Univ. of Pennsylvania School of Medicine.*

9:30 **1056.** Enzymatic conversion of deoxyuridylic acid to thymidylic acid and participation of tetrahydrofolic acid. M. FRIEDKIN. *Washington Univ. School of Medicine.*

9:45 **1057.** Isolation from thymus of a nucleotide containing deoxycytidylic acid. R. L. POTTER AND VINA BUETTNER-JANUSCH (intr. by L. H. LOUIS). *Atomic Energy Commission Lab. and Univ. of Michigan.*

10:00 **1058.** Synthesis of cytidine and related nucleosides. J. J. FOX, N. YUNG* AND DINA VAN PRAAG.* *Sloan-Kettering Inst. for Cancer Research.*

10:15 **1059.** Metabolism of dihydropyrimidines and related compounds. S. GRISOLIA, J. CARAVACA,* S. CARDOSO* AND D. P. WALLACH.* *Univ. of Kansas Med. Ctr.*

10:30 **1060.** Biosynthesis of RNA pyrimidines. R. B. HURLBERT AND H. O. KAMMEN (intr. by C. A. LEPAGE). *Univ. of Texas M.D. Anderson Hosp. and Tumor Inst.*

10:45 **1061.** 5-Fluoropyrimidines as growth inhibitors of microorganisms. J. M. SCHEINER, E. KOSTELAK AND R. DUSCHINSKY (intr. by L. O. RANDALL). *Hoffmann-La Roche, Inc.*

11:00 **1062.** Metabolites of 6-azauracil formed by Streptococcus faecalis. R. E. HANDSCHUMACHER (intr. by A. D. WELCH). *Yale Univ. School of Medicine.*

11:15 **1063.** Metabolism of uridine nucleotides in relation to site of action of penicillin. J. L. STROMINGER AND MILDRED SMITH.* *Washington Univ.* (Pharmacol.)

Glucagon and Insulin

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, DINING ROOM 18

Chairman: A. B. Hastings

9:00 **1064.** Effects of hormones on carbohydrate metabolism in the alligator. R. A. COULSON, OCTAVIA R. STEVENSON* AND T. HERNANDEZ.* *Louisiana State Univ. School of Medicine.*

9:15 **1065.** Effect of glucagon on glycogenesis. R. W. LONGLEY* AND J. H. ROE. *Dorn Lab. for Med. Research and George Washington Univ.*

9:30 **1066.** Metabolic effects of glucagon in diabetics. J. L. IZZO, ANGELA RONCONE AND MARY ANN PALIANI (intr. by W. S. MCCANN). *Univ. of Rochester.*

9:45 **1067.** Effect of glucagon on peripheral utilization of glucose. H. H. TOMIZAWA,* P. M. HYDE,* E. LARSON* AND R. H. WILLIAMS. *Univ. of Washington School of Medicine.* (Pathol.)

10:00 **1068.** Hyperglycemic substances in urine and in spleen. B. HARROW, P. TOMASHEFSKY,* T. T. IRIYE* AND C. FUNK. *City College of New York and Funk Fndn.*

10:15 **1069.** Effects of "total" pancreatectomy on blood lipids and ketone bodies of the rat. S. S. CHERNICK AND R. O. SCOW.* *Natl. Insts. of Health.*

10:30 **1070.** Metabolic sequence of events in liver and diaphragm of rats acutely deprived of insulin. R. SPIRO (intr. by A. B. HASTINGS). *Harvard Med. School.*

10:45 **1071.** A comparison of acute effects of insulin and an arylsulfonylurea on the disposition of glucose and on blood pyruvate. T. F. FRAWLEY (intr. by MARJORIE R. STETTEN). *Natl. Insts. of Health.*

11:00 **1072.** Paper electrophoresis of serum proteins in control and diabetic rats. RUTH D. PETERSON AND CLARISSA H. BEATTY.* *Univ. of Oregon Med. School.*

11:15 **1073.** Difference in glucose utilization among inbred strains of mice. J. B. LYON, JR. (intr. by E. T. PAPAGEORGE). *Emory Univ.*

11:30 **1074.** Iodo-insulin degradation studies. M. KARASEK* AND A. N. WICK. *Scripps Clinic and Research Fndn.*

Wednesday Afternoon, April 17, 1:30 p.m.

Symposium: Structure and Function of Proteins

WEDNESDAY, 1:30 P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: H. Neurath

1:30 **1075.** Chairman's introductory remarks. H. NEURATH. *Univ. of Washington School of Medicine.*

1:40 **1076.** Growth hormones of beef, monkey and human pituitary glands. C. H. LI. *Univ. of California.*

2:15 **1077.** Studies on the structural basis of ribonuclease activity. C. B. ANFINSEN, JR. *Natl. Heart Inst.*

2:50 **1078.** Activation and active center of chymotrypsin and trypsin. H. NEURATH AND G. H. DIXON. *Univ. of Washington School of Medicine.*

3:25 **1079.** Studies on the active site and structure of crystalline papain. E. L. SMITH. *University of Utah College of Medicine.*

4:00 **1080.** Degradation and structure of tobacco mosaic virus. H. FRAENKEL-CONRAT. *Univ. of California.*

Inorganic and Bone

WEDNESDAY, 1:30 P.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: H. C. Hodge

1:30 **1081.** Colorimetric micro determination of serum calcium. M. E. CHILCOTE AND R. D. WASSON (intr. by W. D. LANGLEY). *Univ. of Buffalo School of Medicine.*

1:45 **1082.** A micro method for separation and determination of Ca and Sr in biological fluids. HERTHA H. TAUSSKY (intr. by R. W. BONSNES). *Russell Sage Inst. of Pathology, Cornell Univ. Med. College and New York Hosp.*

2:00 **1083.** Passage of calcium and strontium ions through membranes. J. SAMACHSON, HERTA SPENCER, B. KABAKOW AND D. LASZLO (intr. by I. B. WILSON). *Montefiore Hosp.*

2:15 **1084.** Effect of citrate on solubility of tricalcium phosphate in urine. C. L. YARBRO (intr. by J. C. ANDREWS). *Univ. of North Carolina School of Medicine.*

2:30 **1085.** Influence of fluoride and magnesium on formation of bone salts. A. C. KUYPER AND K. KUTNERIAN.* *Wayne State Univ. College of Medicine.*

2:45 **1086.** Influence of ATP on calcification in vitro. A. E. SOBEL AND M. BURGER.* *Jewish Hosp. of Brooklyn.*

3:00 **1087.** Effects of parathyroid extract on calcium and sulfur metabolism. F. BRONNER (intr. by R. M. ARCHIBALD). *Rockefeller Inst.*

3:15 **1088.** Sialoadenectomy and metabolism of calcium in bone and soft tissues of mouse. YU-SHENG LOUISE FENG AND A. A. WASE (intr. by M. J. BOYD). *Hahnemann Med. College.*

3:30 **1089.** Adrenal steroids and calcium metabolism in the rat. I. CLARK AND R. F. GEOFFROY.* *Merck Inst. for Therapeutic Research.*

3:45 **1090.** Modification of yttrium metabolism in man by chelating agents. H. HART AND BETTY ROSOFF (intr. by H. SOBOTKA). *Montefiore Hosp.*

4:00 **1091.** Urinary excretion of yttrium chelates of cyclohexane 1,2-trans diamine tetraacetic acid (CDTA) and diethylenetriamine pentaacetic acid (DTPA). H. KROLL, S. KORMAN AND ELSIE SIEGEL (intr. by G. R. COWGILL). *Olin Mathieson Chemical Corp. and Montefiore Hosp.*

4:15 **1092.** Mechanism of copper accumulation by liver slices. P. SALTMAN, T. ALEX AND B. MCCORNACK (intr. by A. WARE). *Univ. of Southern California.*

Photosynthesis and Related Topics

WEDNESDAY, 1:30 P.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: H. Gaffron

1:30 **1093.** Quantum efficiency determinations on components of the bacterial luminescent system. M. J. CORMIER* AND J. R. TOTTER. *Oak Ridge Natl. Lab.*

1:45 **1094.** Effects of sodium fluoride on photosynthesis. N. I. Bishop (intr. by H. Gaffron). *Univ. of Chicago.*

2:00 **1095.** Influence of glucose on distribution of C^{14} in sugar formed during photosynthesis. M. Gibbs and O. Kandler.* *Cornell Univ. and Univ. of Munich.*

2:15 **1096.** Chloroplast respiration of glycolate and acetate. L. A. Delavan* and A. A. Benson. *Pennsylvania State Univ.*

2:30 **1097.** Absence of reduced pyridine nucleotide (D(T)PNH) changes during photosynthesis in chlorella. B. L. Strehler. *Univ. of Chicago.*

2:45 **1098.** Photochemical reduction of low potential compounds by leaf preparations. L. P. Vernon and M. O. Hobbs.* *Brigham Young Univ.*

3:00 **1099.** Cytochrome c photo-oxidase of spinach. R. H. Nieman* and Birgit Vennesland. *Univ. of Chicago.*

3:15 **1100.** Ultraviolet inhibition of sucrose synthesis in plants. L. P. Zill (intr. by W. J. Van Wagtendonk). *Oak Ridge Natl. Lab.*

Active Transport of Sugars

Wednesday, 1:30 p.m.—Palmer House, Dining Room 14

Chairman: C. R. Park

1:30 **1101.** Glucose tolerance curves in parabiotic rats. D. G. Fleming and Mary A. Nugent (intr. by O. O. Stoland). *Univ. of Kansas.* (Physiol.)

1:45 **1102.** Active transport of D-galactose-1-C^{14} by slices of rabbit kidney cortex in vitro. S. M. Krane* and R. K. Crane. *Washington Univ. Med. School.*

2:00 **1103.** Structural organization of phosphorus transferring reactions of the red cell. G. R. Bartlett. *Scripps Clinic.*

2:15 **1104.** Transport of glucose and other sugars across the cell membrane of the human erythrocyte. D. Reinwein,* C. F. Kalman* and C. R. Park. *Vanderbilt Univ.*

2:30 **1105.** Correlation of glucose metabolism and transport with mutarotase distribution and kinetics. A. S. Keston. *New York Univ. College of Medicine.*

2:45 **1106.** Assay and purification of mutarotase from Penicillium notatum. D. S. Bhate* and R. Bentley. *Univ. of Pittsburgh Grad. School of Public Health.*

Biochemistry-Nutrition Smoker

Wednesday, 9:00 p.m.—Palmer House, Grand Ballroom

Thursday Morning, April 18, 9:00 a.m.

Symposium: Chemistry and Metabolism of Phosphatides

THURSDAY, 9:00 A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: W. M. Sperry

9:00 **1107.** Chairman's introductory remarks. W. M. SPERRY. *N. Y. State Psychiatric Institute.*

9:10 **1108.** Sphingolipids. H. E. CARTER. *Univ. of Illinois.*

9:35 **1109.** *Discussion:* Glycolipid chromatography. N. S. RADIN. *VA Research Hosp. Chicago.*

9:45 **1110.** Structure of lecithins, inositol phosphatides and acetal phosphatides. D. J. HANAHAN. *Univ. of Washington.*

10:10 **1111.** *Discussion:* Quantitative partition of acetal lipides and free lipide aldehydes. G. SCHMIDT. *New England Med. Ctr.*

10:20 **1112.** Nitrogenous constituents of animal tissue lipides. J. M. MCKIBBIN. *State Univ. of New York, Upstate Med. Ctr.*

10:45 **1113.** Chromatographic separation of phosphatides. G. V. MARINETTI. *Univ. of Rochester School of Medicine and Dentistry.*

11:10 **1114.** *Discussion:* Cephalin separations. JUNE N. OLLEY. *Univ. of Washington.*

11:20 **1115.** Biosynthesis of phosphatides. E. P. KENNEDY. *Univ. of Chicago.*

11:45 **1116.** *Discussion:* Biosynthesis of phosphatides in brain and nerve. R. ROSSITER. *Univ. of Western Ontario, Canada.*

Function of Metals in Enzymes

THURSDAY, 9:00 A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: E. Bueding

9:00 **1117.** Immunochemical and enzyme studies on myosin from denervated and normal muscle. A. SAMUELS (intr. by F. A. CAJORI). *Univ. of Colorado Med. Ctr.* (Nutr.)

9:15 **1118.** Models with the activity of the enzyme hydrogenase. N. TAMIYA,* S. L. MILLER* AND D. RITTENBERG. *Columbia Univ.*

9:30 **1119.** Stoichiometry of the phosphorylase *b* to *a* reaction. E. G. KREBS, A. B. KENT* AND E. H. FISCHER. *Univ. of Washington.*

9:45 **1120.** Phosphopeptides from P^{32}-labeled phosphorylase *a*. E. H. FISCHER, D. J. GRAVES* AND E. G. KREBS. *Univ. of Washington.*

10:00 **1121.** Structure of B. subtilis α-amylase. E. A. STEIN (intr. by A. BODANSKY). *Univ. of Washington.*

10:15 **1122.** Spectrophotometric evidence for enzyme zinc-inhibitor complexation. B. L. VALLEE, T. L. COOMBS* AND R. J. P. WILLIAMS.* *Harvard Med. School.*

10:30 **1123.** Sulfhydryl groups, zinc, chelating inhibitors and their relationship to the action of yeast alcohol dehydrogenase. F. L. HOCH AND BESSIE ZOTOS (intr. by J. P. O'HARE). *Harvard Med. School.* (Pathol.)

10:45 **1124.** Inhibition of copper ion and copper enzyme catalyses by cuprous ion reagents. E. FRIEDEN, G. EZELL AND Y. KARKHANIS.* *Florida State Univ.*

11:00 **1125.** Oxidation of certain thio compounds by preparations from Piricularia oryzae. H. A. NEUFELD, L. F. GREEN, FRANCES M. LATTERELL AND R. L. WEINTRAUB (intr. by M. W. SLEIN). *Fort Detrick.*

11:15 **1126.** Properties of an atypical ascorbic oxidase of Myrothecium verrucaria. G. A. WHITE* AND F. G. SMITH. *Iowa State College.*

Amino Acid Metabolism II

THURSDAY, 9:00 A.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: A. Meister

9:00 **1127.** Glutamate decomposition and synthesis via mesaconate by extracts of Clostridium tetanomorphum. H. A. BARKER, R. MARILYN WILSON* AND AGNETE MUNCH-PETERSEN.* *Univ. of California.*

9:15 **1128.** Formation and hydrolysis of α-glutamylhydrazide. A. S. YARD,* J. H. WEATHERBY* AND H. MCKENNIS, JR. *Med. College of Virginia.*

9:30 **1129.** Free glutamine and glutamic acid levels in the presence or absence of ammonia in vivo. JEAN P. DURUISSEAU,* J.

P. GREENSTEIN, M. WINITZ AND S. M. BIRNBAUM. *Natl. Insts. of Health.*

9:45 **1130.** Metabolism of glutamine in human liver. K. MOLDAVE* AND A. MEISTER. *Tufts Univ. School of Medicine.*

10:00 **1131.** Partial purification of renal glutaminase. J. D. KLINGMAN* AND P. HANDLER. *Duke Univ. School of Medicine.*

10:15 **1131a.** Metabolism of glutamine in mammalian cells grown in tissue culture. W. J. WILLIAMS AND L. A. MANSON (intr. by W. C. STADIE). *Wistar Inst. of Anatomy and Biology and Univ.of Pennsylvania.*

10:30 **1131b.** Interrelationship of glutamine and asparagine in protein biosynthesis in mammalian cells. L. LEVINTOW. *Natl. Insts. of Health.*

10:45 **1131c.** Mechanism of ATP utilization for glutamine synthesis. P. D. BOYER AND H. J. FROMM.* *Univ. of Minnesota.*

11:00 **1131d.** Effects of "C-1" donors on experimental porphyria. E. L. TALMAN AND R. F. LABBE (intr. by W. R. TODD). *Univ. of Oregon Med. School.*

11:15 **1131e.** Metabolism of α-amino-β-ketoadipic acid. I. WELIKY* AND D. SHEMIN. *Columbia Univ.*

11:30 **1131f.** Sulfur amino acid metabolism in liver necrosis. W. E. CORNATZER AND F. SNYDER.* *Univ. of North Dakota Med. School.*

11:45 **1132.** Source of the three carbon chain of spermidine. R. C. GREENE (intr. by N. H. HOROWITZ). *Natl. Insts. of Health.*

12:00 **1133.** Favorable effect of sodium in amino acid metabolism of lactic acid bacteria. J. N. MILLS, W. L. CHUN AND R. J. SIRNY (intr. by V. G. HELLER). *Oklahoma Agricultural Expt. Station.*

Nitrogen Metabolism in Microorganisms

THURSDAY, 9:00 A.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: E. E. Snell

9:00 **1134.** Nitrogen fixation by sonicates of Azotobacter. A. NASON, H. TAKAHASHI,* G. HOCH* AND R. H. BURRIS. *Johns Hopkins and Univ. of Wisconsin.*

9:15 **1135.** Hydrazine and nitrogen fixation. M. K. BACH* AND R. H. BURRIS. *Univ. of Wisconsin.*

9:30 **1136.** Intracellular putrescine: a characteristic of Gram-negative microorganisms. E. J. HERBST, R. H. WEAVER AND D. L. KEISTER (intr. by MARIE A. ANDERSCH). *Univ. of Maryland School of Medicine.*

9:45 **1137.** Reaction of hydroxylamine with O-acetyl groups in the cell wall of Streptococcus fecalis. A. ABRAMS. *Univ. of Colorado School of Medicine.*

10:00 **1138.** Macromolecular composition of three strains of Streptococcus pyogenes. E. L. HESS, H. D. SLADE* AND I. KOMINE.* *Rheumatic Fever Research Inst.*

10:15 **1139.** Isolation and chemical properties of flagellar proteins. J. N. RINKER, T. KOBAYASHI AND H. KOFFLER (intr. by S. M. HAUGE). *Purdue Univ.*

10:30 **1140.** Biosynthesis of diaminopimelic acid. C. GILVARG. *New York Univ. College of Medicine.*

10:45 **1141.** Adaptive degradation of hydroxyproline in bacteria. E. ADAMS. *New York Univ. College of Medicine.*

11:00 **1142.** Replacement of methionine by homodjenkolic acid in growth of Ochromonas malhemansis. H. J. HANSEN (intr. by M. H. HACK). *Tulane Univ.*

11:15 **1143.** Relation of vitamin B_6 to loss of cell constituents by L. arabinosus. J. T. HOLDEN AND JANE HOLMAN (intr. by DAISY G. SIMONSEN). *City of Hope Med. Ctr.*

11:30 **1144.** Metabolism of growth factors for rumen microorganisms: valeric acid, valine, the leucines and proline. R. R. JOHNSON, BURK A. DEHORITY,* O. G. BENTLEY* AND A. L. MOXON. *Ohio Agricultural Expt. Station.*

Thursday Afternoon, April 18, 1:30 p.m.

Oxidative Phosphorylation

THURSDAY, 1:30 P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: A. L. Lehninger

1:30 **1145.** Pyrophosphate formation by microsomes. F. T. KENNEY AND ELIZABETH BARBEHENN (intr. by E. V. MCCOLLUM). *Johns Hopkins Univ.*

1:45 **1146.** Potassium ferricyanide as terminal electron acceptor in oxidative phosphorylation. R. W. ESTABROOK (intr. by A. N. RICHARDS). *Univ. of Pennsylvania.*

2:00 **1147.** Ionic requirement for phosphorylation, ATP-P^{32} exchange and ATPase in mitochondrial fragments. J. R. BRONK* AND W. W. KIELLEY. *Natl. Insts. of Health.*

2:15 **1148.** Oxidation state of respiratory carriers and the ATP-P_i^{32} exchange reaction. C. L. WADKINS* AND A. L. LEHNINGER. *Johns Hopkins School of Medicine.*

2:30 **1149.** A soluble enzyme catalyzing an exchange between P_i^{32} and ATP. G. W. E. PLAUT. *New York Univ. College of Medicine.*

2:45 **1150.** Kinetics of cytochrome *b* reduction in rat heart sarcosomes in shock. L. PACKER (intr. by ELIZABETH R. B. SMITH). *Walter Reed Army Inst. of Research.*

3:00 **1151.** Stability of aerobic phosphorylation in mitochondria. E. C. WEINBACH. *Natl. Insts. of Health.*

3:15 **1152.** Effects of freezing and storage on oxidative phosphorylation of mitochondria. C. A. PRIVITERA,* D. GREIFF,* D. R. STRENGTH, M. ANGLIN* AND H. PINKERTON. *St. Louis Univ.* (Pathol.)

3:30 **1153.** Control of the phosphorylative rate in washed rat liver mitochondria. MARJORIE A. SWANSON. *Bowman Gray School of Medicine.*

3:45 **1154.** Oxidative phosphorylation with different mitochondrial types. R. L. LESTER AND Y. HATEFI (intr. by L. J. TEPLY). *Univ. of Wisconsin.*

4:00 **1155.** Effect of fluorocompounds on mitochondrial nucleotides. A. S. FAIRHURST,* E. M. GAL AND R. E. SMITH.* *UCLA Med. Ctr.*

4:15 **1156.** Oxidative phosphorylation by rat liver mitochondria in the presence of simple and complex ions. E. JACOBS (intr. by M. ROTHSTEIN). *Univ. of California Med. School and Univ. of Wisconsin.*

Carbohydrate Metabolism—Shunt Reactions

THURSDAY, 1:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: B. L. Horecker

1:30 **1157.** Isolation and properties of glucose-6-phosphate and 6-phosphogluconate dehydrogenases. T. E. KING AND V. H. CHELDELIN. *Oregon State College.*

1:45 **1158.** Effect of oxidation-reduction mediators on metabolism of differentially labeled glucose. G. F. CAHILL, JR.* J. ASHMORE, A. B. HASTINGS AND S. ZOTTU.* *Harvard Med. School.*

2:00 **1159.** Pentose metabolism in human erythrocyte ghosts. W. L. MCLELLAN AND F. J. LIONETTI (intr. by B. S. WALKER). *Boston Univ. School of Medicine.*

2:15 **1160.** Biosynthesis of ribose in HeLa cells grown in tissue culture. H. H. HIATT (intr. by H. L. BLUMGART). *Beth Israel Hosp. and Harvard Med. School.* (Physiol.)

2:30 **1161.** Formation of ribose and glucose in rat liver in vivo. P. A. MARKS AND P. FEIGELSON (intr. by J. V. TAGGART). *Columbia Univ.* (Physiol.)

2:45 **1162.** Fructose and erythrose metabolism in a strain of Alcaligenes faecalis. G. F. DOMAGK (intr. by E. O. KEILES). *Natl. Insts. of Health.*

3:00 **1163.** Equilibrium between glucose- and fructose-6-phosphate, and sedoheptulose phosphate, triose phosphate and pentose phosphate in human hemolysates. Z. DISCHE. *Columbia Univ.*

3:15 **1164.** L ribulose-phosphate—D-xylulose-phosphate stereoisomerase from Aerobacter aerogenes. M. J. WOLIN,* F. J. SIMPSON* AND W. A. WOOD. *Univ. of Illinois.*

3:30 **1165.** L-arabinose isomerase and L-ribulose kinase in Lactobacillus pentosus. D. P. BURMA, Y. TAKAGI AND P. Z. SMYRNIOTIS (intr. by L. A. HEPPEL). *Natl. Insts. of Health.*

3:45 **1166.** Pentose fermentation in lactobacillus pentosus. B. L. HORECKER, E. C. HEATH,* J. HURWITZ* AND A. GINSBURG.* *Natl. Insts. of Health.*

4:00 **1167.** Isolation of L-arabitol from pentosuric urine. O. Touster, Shirley Harwell* and Margarita Escobedo G.* *Vanderbilt Univ. School of Medicine.*

DNA Metabolism; Viruses

Thursday, 1:30 p.m.—Palmer House, Exhibit Hall

Chairman: W. M. Stanley

1:30 **1168.** Introduction of 5-bromouracil into DNA of E. coli. S. Zamenhof, K. Rich* and Rosalie De Giovanni.* *Columbia Univ.*

1:45 **1169.** Enzymatic synthesis of deoxyribonucleic acid (DNA). M. J. Bessman,* I. R. Lehman,* E. S. Simms* and A. Kornberg. *Washington Univ. School of Medicine.*

2:00 **1170.** Some properties of bacteriophage ØX174. R. L. Sinsheimer. *Iowa State College.*

2:15 **1171.** Specific P^{32} radioactivity of acid-soluble components of u.v. induced and T_2r infected bacteria. J. F. O'Donnell,* R. P. Mackal* and E. A. Evans, Jr. *Univ. of Chicago.*

2:30 **1172.** RNA turnover and DNA synthesis in bacteriophage-infected bacteria. L. Astrachan* and E. Volkin. *Oak Ridge Natl. Lab.*

2:45 **1173.** Sulfur mustard on genetic and non-genetic functions of coli T2 bacteriophage. B. Papirmeister,* S. Parsons* and R. M. Herriott. *Army Chem. Ctr. and Johns Hopkins Univ.*

3:00 **1174.** Degradation of tobacco mosaic virus by alkanolamines. P. Newmark and R. W. Myers (intr. by R. C. Mills). *Univ. of Kansas.*

3:15 **1175.** Biological activities of tobacco mosaic virus nucleic acid. B. Commoner, E. Basler, Jr.,* Mas Yamada* and Tung-Yue Wang.* *Washington Univ.*

3:30 **1176.** Properties of infective centers induced with infectious ribonucleic acid. A. Siegel, W. Ginoza and S. G. Wildman (intr. by N. S. MacDonald). *Univ. of California.*

3:45 **1177.** Inactivation of infectious nucleic acid from tobacco mosaic virus by ultraviolet light (2537Å). A. D McLaren and W. N. Takahashi.* *Univ. of California.*

4:00 **1178.** Inactivation of TMV-RNA with formaldehyde. M. Staehelin (intr. by H. Fraenkel-Conrat). *Univ. of California.*

4:15 **1179.** An activity of non-infectious influenza virus (PR8) preparations. R. Bernal Johnson (intr. by W. W. Ackermann). *Univ. of Michigan School of Public Health.*

Enzymes of Amino Acid Metabolism

Thursday, 1:30 p.m.—Palmer House, Foyer Grand Ballroom

Chairman: P. P. Cohen

1:30 **1180.** Presence of an ε-lysine acylase in animal tissues. W. K. Paik,* Leah Bloch-Frankenthal,* S. M. Birnbaum, M. Winitz and J. P. Greenstein. *Natl. Insts. of Health.*

1:45 **1181.** Purification and properties of a glutathionase. G. M. Christensen (intr. by F. Binkley). *Emory Univ.*

2:00 **1182.** Nature of leucine aminopeptidase from an ascites tumor. Elizabeth K. Patterson (intr. by M. A. Bennett). *Inst. of Cancer Research and Lankenau Hosp. Research Inst.*

2:15 **1183.** Mechanism of carbamyl phosphate synthesis in liver preparations. R. L. Metzenberg,* L. M. Hall* and P. P. Cohen. *Univ. of Wisconsin.*

2:30 **1184.** Carbamylation of putrescine. S. Friedman (intr. by H. E. Umbarger). *Harvard School of Dental Medicine.*

2:45 **1185.** Isolation of a crystalline enzyme that cleaves homoserine and cystathionine. Y. Matsuo* and D. M. Greenberg. *Univ. of California School of Medicine.*

3:00 **1186.** Enzymatic synthesis of S-adenosylhomocysteine from adenosine and L-homocysteine. G. de la Haba* and G. L. Cantoni. *Natl. Insts. of Health.*

3:15 **1187.** Sulfate activation and esterification. H. L. Segal (intr. by R. S. Tipson). *Univ. of Pittsburgh Med. School.*

3:30 **1188.** Reactions of selenate in the sulfate activating system. L. G. Wilson* and R. S. Bandurski. *Michigan State Univ.*

3:45 **1189.** Oxidation of L-α-amino acids by chicken liver microsomes. J. Struck* and I. W. Sizer. *Massachusetts Inst. of Technology.*

4:00 **1190.** Hormone-stimulated concentration of an unmetabolizable amino acid. M. W. Noall* and H. N. Christensen. *Univ. of Michigan and Washington Univ.*

4:15 **1191.** Transaminase inhibition by hydroxyaspartic, diaminosuccinic and diaminopropionic acids. M. Garcia-Hernandez* and E. Kun. *Univ. of Wisconsin.*

Protein Chemistry

Thursday, 1:30 p.m.—Palmer House, Dining Room 14

Chairman: S. Moore

1:30 **1192.** Physicochemical properties of p-carboxy phenyl azo insulins. W. L. Koltun

(intr. by F. R. N. GURD). *Cornell Univ. Med. College.*

1:45 **1193.** Properties of purified tyrosinase and hemocyanin. K. YASUNOBU,* L. C. G. THOMSON* AND H. S. MASON. *Univ. of Oregon Med. School.*

2:00 **1194.** Action of purified collagenase on neutral solutions of ichthyocol. S. SEIFTER, P. M. GALLOP* AND E. MEILMAN.* *Albert Einstein College of Medicine and Long Island Jewish Hosp.*

2:15 **1195.** An epsilon lysyl peptide from collagen. G. L. MECHANIC* AND M. LEVY. *New York Univ. Colleges of Medicine and Dentistry.*

2:30 **1196.** Sedimentation and viscosity studies of bovine fibrinogen solutions at various ionic strengths. R. SOWINSKI,* LUBOMYRA OHARENKO* AND V. L. KOENIG. *Northwestern Univ. Med. School.*

2:45 **1197.** Properties of purified human serum β-lipoglobulin. P. BERNFELD. *Tufts Univ. School of Medicine.*

3:00 **1198.** Free amino groups of Bence-Jones proteins. F. W. PUTNAM. *Univ. of Florida College of Medicine.*

3:15 **1199.** Bence-Jones and myeloma proteins. J. SCHULTZ, G. GRANNIS, H. KIMMEL* AND H. SHAY.* *Temple Univ. School of Medicine.*

3:30 **1200.** A comparison between porcine and bovine melanocyte-stimulating hormones. I. I. GESCHWIND,* C. H. LI AND L. BARNAFI.* *Univ. of California.*

3:45 **1201.** Fractionation of neutral salt soluble collagen, using temperature dependence of solubility. J. H. FESSLER (intr. by J. GROSS). *Massachusetts Gen. Hosp.* (Physiol.)

4:00 **1202.** Comparative study of serum and gastric mucoproteins. G. B. J. GLASS, MARILYN RICH* AND L. STEPHANSON.* *New York Med. College.* (Physiol.)

4:15 **1203.** Action of Clostridium perfringens on orosomucoid. E. A. POPENOE AND RUTH M. DREW.* *Brookhaven Natl. Lab.*

Nutrition I

THURSDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 17

Chairman: H. H. Williams

1:30 **1204.** Vitamin D and citrate oxidation in rat kidney mitochondria. H. F. DELUCA,* F. C. GRAN* AND H. STEENBOCK. *Univ. of Wisconsin.*

1:45 **1205.** Preliminary metabolic studies in vitamin E deficiency. KAY FINK, A. D. WILLIAMS* AND R. M. FINK. *Univ. of California and VA Hosp., Long Beach.*

2:00 **1206.** Exudative diathesis and vitamin E deficiency in turkey poults: vitamin E deficiency in turkeys. B. G. CREECH,* G. L. FELDMAN,* T. M. FERGUSON,* B. L. REID* AND J. R. COUCH. *Texas A and M College System.*

2:15 **1207.** Intracellular distribution of radioactivity following intravenous administration of C^{14}-labeled vitamin E. E. J. SIMON, CHARLOTTE S. GROSS AND ADE T. MILHORAT (intr. by G. STONE). *Cornell Univ. Med. College, New York Hosp.*

2:30 **1208.** Effects of choline and vitamin E deficiencies on enzymatic processes in muscle and liver. MARY P. CARPENTER,* P. B. MCCAY* AND R. CAPUTTO. *Oklahoma Med. Research Fndn.*

2:45 **1209.** Function of vitamin A. G. WOLF,* S. R. WAGLE* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

3:00 **1210.** In vivo isomerization of vitamin A isomers. S. R. AMES, W. J. SWANSON* AND P. L. HARRIS. *Distillation Products Industries.*

3:15 **1211.** Carotene metabolism in essential fatty acid deficiency. J. S. MCANALLY AND C. SZYMANSKI (intr. by G. T. LEWIS). *Univ. of Miami School of Medicine.*

3:30 **1212.** Essential fatty acid and pyridoxine deficiency in monkeys. L. D. GREENBERG AND H. D. MOON.* *Univ. of California School of Medicine.*

3:45 **1213.** Diminished tissue uptake of α-aminoisobutyric acid in vitamin B_6-deficient rats. T. R. RIGGS, LOIS M. WALKER* AND H. N. CHRISTENSEN. *Univ. of Michigan.*

4:00 **1214.** Histidine metabolism in vitamin B_6- and in biotin-deficient rats. R. C. BALDRIDGE AND C. D. TOURTELLOTTE (intr. by H. W. ROBINSON). *Temple Univ. School of Medicine.*

Biochemistry Society Business Meeting

THURSDAY, 4:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Friday Morning, April 19, 9:00 a.m.

Biological Oxidation

FRIDAY, 9:00 A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: L. P. Vernon

9:00 **1215.** Inhibition of electron transport in Escherichia coli by aureomycin. A. K. SAZ, L. M. MARTINEZ AND M. B. MIDDLETON (intr. by H. G. STEINMAN). *Natl. Insts. of Health.*

9:15 **1216.** Some oxidative enzymes of anaerobically grown yeast. A. LINDENMAYER* AND LUCILE SMITH. *Univ. of Pennsylvania.*

9:30 **1217.** Steady state changes of the cytochromes following isometric twitches. ANNEMARIE WEBER (intr. by D. NACHMANSOHN). *Columbia Univ. and Univ. of Pennsylvania.*

9:45 **1218.** Fragmentation of the succinic dehydrogenase complex (SDC). R. E. BASFORD,* J. JARNEFELT,* H. TISDALE* AND D. E. GREEN. *Univ. of Wisconsin.*

10:00 **1219.** Activation of succinic dehydrogenase. EDNA B. KEARNEY AND T. P. SINGER. *E. B. Ford Inst. for Med. Research.*

10:15 **1220.** Chemical nature and catalytic functions of the iron moieties of succinic dehydrogenase. V. MASSEY. *E. B. Ford Inst. for Med. Research.*

10:30 **1221.** Reduction of neotetrazolium by succinate, isocitrate and β-hydroxybutyrate in water homogenates of guinea pig kidney. H. KAMIN, R. H. GIBBS* AND A. D. MERRITT.* *VA Hosp. Durham, and Duke Univ. School of Medicine.*

10:45 **1222.** Nature of linkage of pyridinoproteins to the electron transport system. D. M. ZIELGER AND A. W. LINNANE (intr. by C. A. ELVEHJEM). *Univ. of Wisconsin.*

11:00 **1223.** Succinate-linked pyridine nucleotide reduction in mitochondria. B. CHANCE AND G. HOLLUNGER.* *Univ. of Pennsylvania.*

11:15 **1224.** Microsomal DPNH cytochrome *c* reductase. N. PENN* AND B. MACKLER. *Univ. of Wisconsin.*

11:30 **1225.** TPNH-cytochrome *c* reductase and nitrate reductase from neurospora. S. C. KINSKY* AND W. D. MCELROY. *Johns Hopkins Univ.*

Carbohydrate Metabolism—Pyruvate and Related Reactions

FRIDAY, 9:00 A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: H. G. Wood

9:00 **1226.** Non-enzymic decarboxylation of pyruvate by thiamine and thiamine analogs. EMETERIA Y. MANZO AND D. E. METZLER (intr. by B. H. THOMAS). *Iowa State College.* (Nutr.)

9:15 **1227.** Factors affecting the interaction of thiamine pyrophosphate and yeast carboxylase. H. B. STEWART (intr. by F. C. HEAGY). *Univ. of Western Ontario.*

9:30 **1228.** Pyruvic oxidase of Myocobacterium tuberculosis. D. S. GOLDMAN. *VA Hosp., Madison.*

9:45 **1229.** Trypsin activation of a ferricyanide linked pyruvic acid oxidation. L. P. HAGER (intr. by J. T. EDSALL). *Harvard Univ.*

10:00 **1230.** Interference with acyl transfer by a thioctic acid (TA) analogue, 6-ethyl-8-mercaptooctanoic acid (6-EMO). ALBERTA M. ALBRECHT (intr. by E. L. PATTERSON). *American Cyanamid Co.*

10:15 **1231.** Pyruvate utilization in heart sarcosomes. O. K. REISS (intr. by L. HELLERMAN). *Johns Hopkins Univ. School of Medicine.*

10:30 **1232.** Biological turnover of pyruvate-2-C^{14} in dogs and man. R. E. OLSON. ANITA RAU,* SUSAN MAURY AND BEVERLY STEWART.* *Grad. School of Public Health, Univ. of Pittsburgh.*

10:45 **1233.** Enolase. C. E. BALLOU AND F. WOLD.* *Univ. of California.*

11:00 **1234.** An aldehyde dehydrogenase requiring inorganic phosphate. W. B. JAKOBY (intr. by HELEN M. DYER). *Natl. Insts. of Health.*

11:15 **1235.** A new pathway for the metabolism of ethanol. M. P. SCHULMAN AND W. W. WESTERFELD. *State Univ. of New York College of Medicine.*

11:30 **1236.** Pathway of carbon in acetate-adapted E. coli. A. J. GLASKY* AND M. E. RAFELSON, JR. *Univ. of Illinois College of Medicine.*

Steroid Hormones and Sterols

FRIDAY, 9:00 A.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: R. I. Dorfman

9:00 **1237.** Steroid hormones and acetylation of sulfanilamide. A. F. FISHKIN AND G. F. LATA (intr. by H. B. BULL). *State Univ. of Iowa.*

9:15 **1238.** Role of the tyrosine residue in the interaction of testosterone with serum albumin. B. H. LEVEDAHL AND EVAN OYAKAWA (intr. by T. L. JAHN) *Univ. of California.* (Physiol.)

9:30 **1239.** Spectrophotometric observations on interaction between proteins and Δ^4-3-ketosteroids. U. WESTPHAL AND B. D. ASHLEY.* *Army Med. Research Lab.*

9:45 **1240.** Enzymatic hydrolysis of urinary steroids. E. BLOCH (intr. by R. I. DORFMAN). *Worcester Fndn. for Exptl. Biology.*

10:00 **1241.** Effect of hypophysectomy and adrenalectomy on estradiol control of DPNH oxidation in rat uterus. A. T. BEVER AND P. J. CAMPBELL (intr. by A. C. KURTZ). *Univ. of Oklahoma School of Medicine.*

10:15 **1242.** Possible urinary metabolites of estrogens. JOSEPHINE B. GARST. *Univ. of California School of Medicine.*

10:30 **1243.** Identification of estradiol-17β from dogfish ova. H. H. WOTIZ, C. BOTTICELLI,* F. L. HISAW, JR.* AND I. RINGLER.* *Boston Univ. School of Medicine and Harvard Univ.*

10:45 **1244.** Early effects of estradiol on nucleic acid metabolism in the rat uterus. KRISTIAN F. JERVELL,* C. R. DINIZ* AND G. C. MUELLER. *Univ. of Wisconsin.*

11:00 **1245.** Influence of castration and testosterone on glutamic dehydrogenase activity of mouse tissues. G. L. ENDAHL (intr. by M. N. HUFFMAN). *Oklahoma Med. Research Fndn.*

11:15 **1246.** In vitro effect of hydrocortisone and desoxycorticosterone on glucose oxidation by mesenteric lymph nodes and lymphosarcoma of the rat. LILLIAN A. JEDEIKIN (intr. by H. J. STRECKER). *Albert Einstein College of Medicine.*

11:30 **1247.** Effects of 17-hydroxycorticosterone on cell content changes and formate-C^{14} incorporation in proteins, phospholipids and nucleic acids. D. S. KINNORY, R. VEATCH, J. GRECO AND E. KANABROCKI (intr. by ALMA HILLER). *VA Hosp., Hines, Ill., and Stritch School of Medicine.*

11:45 **1248.** Incorporation of acetate into skin sterols in vitro. S. C. BROOKS* AND C. A. BAUMANN. *Univ. of Wisconsin.*

Amino Acid Chemistry

FRIDAY, 9:00 A.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: H. T. Clarke

9:00 **1249.** Isolation of an intermediate in the nonenzymatic catalysis of the breakdown of *p*-nitrophenyl acetate by benzoylhistidine methyl ester. A. S. BRECHER* AND A. K. BALLS. *Purdue Univ.*

9:15 **1250.** Micro-determination of lysine in protein hydrolysates. A. A. ALBANESE AND LOUISE A. ORTO.* *St. Luke's Hosp., New York City.*

9:30 **1251.** Detection of small quantities of bound amino acids in the presence of large quantities of free amino acids. A. MARKOVITZ (intr. by C. BAKER). *Natl. Insts. of Health.*

9:45 **1252.** Apparent free amino acids in deproteinized plasma of normal and of uremic dogs and humans. P. F. SALISBURY,* E. A. MURPHY* AND M. S. DUNN. *Univ. of California and Cedars of Lebanon Hosp.*

10:00 **1253.** Amino acid spectrum of the matrix of urinary calculi. J. S. KING, JR. AND W. H. BOYCE (intr. by W. A. WOLFF). *Bowman Gray School of Medicine.*

10:15 **1254.** Transfer of ergothioneine to newborn and weanling rats. J. A. ONTKO* AND P. H. PHILLIPS. *Univ. of Wisconsin.*

10:30 **1255.** A new naturally occurring thiol and other sulfur containing compounds isolated from yeast. S. BLACK, PHYLLIS F. DOWNEY* AND EDITH C. WOLFF.* *Natl. Insts. of Health.*

10:45 **1256.** Hydrolysis of S-adenosylmethionine by alkali. L. W. PARKS* AND F. SCHLENK. *Argonne Natl. Lab.*

11:00 **1257.** Chemical synthesis and enzymatic utilization of adenyl amino acids. P BERG. *Washington Univ. School of Medicine.*

11:15 **1258.** Reaction of formaldehyde with methionine. T. F. LAVINE, N. F. FLOYD* AND MARY S. CAMMAROTI.* *Lankenau Hosp. Research Inst. and Inst. for Cancer Research.*

11:30 **1259.** Formation of a thioether derivative of homogentisic acid catalyzed by horse radish peroxidase (HRP). B. N. LA DU AND V. G. ZANNONI.* *Natl. Insts. of Health.*

11:45 **1260.** Entropies of some aminc acids. J.

O. Hutchens, A. G. Cole,* R. A. Robie* and J. W. Stout.* *Univ. of Chicago.* (Physiol.)

Plant Biochemistry

Friday, 9:00 a.m.—Palmer House, Dining Room 14

Chairman: R. H. Burris

9:00 **1261.** Isolation and characterization of the bitter principles in peanut hearts. J. W. Dieckert and Nelle J. Morris (intr. by A. M. Altschul). *Southern Regional Research Lab.*

9:15 **1262.** Oxidation of phenylpyruvic acid. E. E. Conn and S. Louise Seki.* *Univ. of California.*

9:30 **1263.** DPN-linked oxidation of amino acids by enzymes from tobacco leaves. I. Zelitch. *Connecticut Agricultural Expt. Station.*

9:45 **1264.** Phosphoryl choline in plants. N. E. Tolbert. *Oak Ridge Natl. Lab.*

10:00 **1265.** Enzymic synthesis of oleic and palmitic acids by higher plants. P. K. Stumpf and G. A. Barber.* *Univ. of California.*

10:15 **1266.** Formation and interconversion of sugar nucleotides by plant extracts. E. F. Neufeld,* V. Ginsburg,* E. W. Putman,* D. Fanshier* and W. Z. Hassid. *Univ. of California.*

10:30 **1267.** Tracer studies of hexose and pentose formation in ripening fruit. F. A. Loewus and Rosie Jang.* *Western Utilization Research Branch, USDA.*

10:45 **1268.** Oxidative phosphorylation during maturation of plant tissue. Joy D. Marks and J. E. Varner (intr. by M. L. Wolfrom). *Ohio State Univ.*

11:00 **1269.** Enzyme synthesis in the cotyledons of germinating seeds. J. L. Young (intr. by F. E. Deatherage). *Ohio State Univ.*

11:15 **1270.** Biosynthesis of pectinic acid methyl esters. Pei-Hsing Lin Wu* and R. U. Byerrum. *Michigan State Univ.*

Nutrition II

Friday, 9:00 a.m.—Palmer House, Dining Room 17

Chairman: S. R. Ames

9:00 **1271.** Hormonal effects on uptake of neutral fat by the perfused liver. M. Heimberg and H. C. Meng (intr. by E. V Newman). *Vanderbilt Univ. School of Medicine.* (Physiol.)

9:15 **1272.** Biochemical changes in the liver associated with kwashiorkor. H. B. Burch, G. Arroyave,* Ruth Schwartz,* Ana M. Padilla,* M. Behar,* F. Viteri* and N. S. Scrimshaw.* *Washington Univ. School of Medicine and Inst. of Nutrition of Central America and Panama, Guatemala.*

9:30 **1273.** Stimulation of the cyanide-sensitive alkaline phosphatase of rat liver by protein deficiency and dietary fat. O. Rosenthal, Elena Armocida,* V. Coyle,* H. M. Vars and J. Hobart.* *Univ. of Pennsylvania School of Medicine.*

9:45 **1274.** Relationship of dietary protein, ascorbic acid and glutathione in estrogen inactivation. F. D. Vasington and R. E. Vanderlinde (intr. by E. G. Schmidt). *Univ. of Maryland School of Medicine.*

10:00 **1275.** Turnover rates of tissue constituents. D. L. Buchanan. *VA Hosp., West Haven.*

10:15 **1276.** Influence of pantoyltaurine and taurine on hatching of golden nematode larvae. A. L. Neal (intr. by Louise J. Daniel). *Cornell Univ.*

10:30 **1277.** Feeding experiments with mercapturic acids. H. D. West, R. A. Ewing, Jr.* C. Mosee,* J. F. Williams* and I. H. Miller.* *Meharry Med. College.*

10:45 **1278.** Metabolism of quercetin by rat kidney preparations. C. D. Douglass and Rose Hogan (intr. by P. L. Day). *Univ. of Arkansas School of Medicine.*

11:00 **1279.** Preparation and properties of biotinyl phosphate. Virginia R. Williams and Sally E. Cauthen.* *Louisiana State Univ.*

11:15 **1280.** Synthesis and activity for Lactobacillus casei of 6-ethyl-(methyl-)-7-methyl-(ethyl -) - 9 - (1′ - D - ribityl) -isoalloxazines. J. P. Lambooy. *Univ. of Rochester.*

11:30 **1281.** Effect of surface-active agents on biosynthesis of riboflavin in Ashbya gossypii. C. G. Smith, Geneva A. Smith and Zoe Papadopoulou (intr. by Jytte Muus). *Mount Holyoke College.*

Friday Afternoon, April 19, 1:00 p.m.

Phosphorylation and Phosphatases

FRIDAY, 1:00 P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: I. S. Kleiner

1:00 **1282.** Is ATP a catalyst or an energy donor? UNA L. HART (intr. by I. S. KLEINER). *New York Med. College.*

1:15 **1283.** Calorimetric determination of free energy and entropy changes. T. BENZINGER. *Naval Med. Research Inst.* (Physiol.)

1:30 **1284.** Free energy, heat, and entropy changes of glutamine and adenosine triphosphate hydrolysis. C. KITZINGER, T. BENZINGER AND R. HEMS (intr. by O. GAUER). *Naval Med. Research Inst., and Univ. of Oxford.* (Physiol.)

1:45 **1285.** Effect of metal cations on adenosinetriphosphate activity of rat brain. HELEN H. HESS* AND ALFRED POPE. *Harvard Med. School.*

2:00 **1286.** Muscle acetyl phosphatase. ISAAC HARARY (intr. by J. SNOKE). *VA Hosp., Long Beach, and Univ. of California.*

2:15 **1287.** Preparation and some properties of soluble glucose-6-phosphatase. R. G. LANGDON AND D. R. WEAKLEY.* *Johns Hopkins Univ. School of Medicine.*

2:30 **1288.** A nucleotide phosphatase dependent on a reducing agent. E. C. HERMAN, JR. AND BARBARA E. WRIGHT (intr. by O. MICKELSEN). *Natl. Insts. of Health.*

2:45 **1289.** Nature of the reaction of dog intestinal alkaline phosphatase with its antibodies. M. SCHLAMOWITZ. *Roswell Park Memorial Inst.*

Amino Acid and Protein Metabolism

FRIDAY, 1:00 P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: H. N. Christensen

1:00 **1290.** Phosphate esterification coupled to glycine reduction in enzyme preparations of Clostridium sticklandii. THRESSA C. STADTMAN (intr. by J. C. KERESZTESY). *Natl. Insts. of Health.*

1:15 **1291.** Enzymes of histidine biosynthesis in histidine-requiring mutants of neurospora. B. N. AMES (intr. by J. C. REID). *Natl. Insts. of Health.*

1:30 **1292.** Histidine synthesis in E. coli. A. NEIDLE* AND H. WAELSCH. *Columbia Univ.*

1:45 **1293.** Metabolism of acetone-2-C^{14} in the intact rat. D. C. HOBBS, R. J. HILL AND R. E. KOEPPE (intr. by T. P. NASH, JR.). *Univ. of Tennessee.*

2:00 **1294.** Formation of methylmalonate in rat liver. L. BARNESS,* O. BARNABEI,* A. VALYASEVI* AND P. GYÖRGY. *Univ. of Pennsylvania School of Medicine*

2:15 **1295.** Enzymatic synthesis of methylmalonic semialdehyde. G. RENDINA (intr. by H. C. ECKSTEIN). *Univ. of Michigan Med. School.*

2:30 **1296.** Incorporation of hydroxyproline into protein. C. R. A. BERGER (intr. by L. M. HENDERSON). *Univ. of Illinois.*

2:45 **1297.** In vitro incorporation of proline-C^{14} as hydroxyproline-C^{14} in collagen. C. MITOMA AND T. E. SMITH (intr. by S. UDENFRIEND). *Natl. Insts. of Health.*

3:00 **1298.** Role of hydroxylysine in the synthesis of collagen. F. M. SINEX AND D. D. VAN SLYKE. *Brookhaven Natl. Lab.*

3:15 **1299.** Phosphate transfer to yolk phosphoprotein. M. RABINOWITZ (intr. by M. E. JONES). *Massachusetts Gen. Hosp.*

Tissue Respiration and Metabolism

FRIDAY, 1:00 P.M.—PALMER HOUSE, EXHIBIT HALL

Chairman: N. Haugaard

1:00 **1300.** Inhibitory effect of 2-ethyl, 5-methylbenzimidazole on synthesis of phospholipid and pentosenucleic acid in chicken red blood cells. S. A. SINGAL AND V. P. SYDENSTRICKER.* *Med. College of Georgia.*

1:15 **1301.** Toxic action of oxygen on carbohydrate metabolism in vitro. N. HAUGAARD, MARILYN HESS* AND H. ITSKOVITZ.* *Univ. of Pennsylvania School of Medicine.*

1:30 **1302.** Carbohydrate metabolism in Penicillium digitatum. C. H. WANG, D. J. REED,* E. NOBLE,* B. E. CHRISTENSEN* AND V. H. CHELDELIN. *Oregon State College.*

1:45 **1303.** Effects of nitrophenols on metabolism of spermatozoa. C. TERNER. *Worcester Fndn. for Exptl. Biology.*

2:00 **1304.** Metabolism of polymorphonuclear leucocytes. FRANCES L. ESTES, SHIRLEY SMITH AND J. H. GAST (intr. by J. B. WALKER). *Baylor Univ. College of Medicine.*

2:15 **1305.** Effect of purine ribosides on glucose and pyruvate metabolism of human erythrocytes. T. J. MCMANUS, S. B. REES AND J. G. GIBSON, 2ND. (intr. by H. C. TRIMBLE). *Peter Bent Brigham Hosp. and Harvard Med. School.*

2:30 **1306.** Glucose oxidation in prostatic tissue from normal and hypoglycemic dogs and the effect of LSD. G. G. RUDOLPH* AND N. S. OLSEN. *VA Hosp., Nashville.* (Physiol.)

2:45 **1307.** Biochemical studies of animal cells grown in tissue culture. W. J. RUTTER, R. W. BROSEMER AND O. C. RICHARDS (intr. by W. C. ROSE). *Univ. of Illinois.*

Nutrition—B Vitamins

FRIDAY, 1:00 P.M.—PALMER HOUSE, FOYER GRAND BALLROOM

Chairman: B. S. Schweigert

1:00 **1308.** Quantitative assay of intrinsic factor activity by urinary excretion of radioactive vitamin B_{12}. W. L. WILLIAMS AND L. ELLENBOGEN.* *American Cyanamid Co.*

1:15 **1309.** Vitamin B_{12} and nucleic acid metabolism. F. A. NAYDER* AND B. S. SCHWEIGERT. *Univ. of Chicago.*

1:30 **1310.** Effect of vitamin B_{12} on liver diphosphopyridine nucleotide. CAROL C. CHANG,* J. M. HSU,* R. L. DAVIS* AND B. F. CHOW. *Johns Hopkins Univ. and VA Hosp., Baltimore.*

1:45 **1311.** Interrelationship of dietary vitamin B_{12} or fat with thyrotoxicosis on respiratory enzyme activity in rat liver. H. O. KUNKEL AND W. P. CRAWFORD.* *Texas A and M College System.*

2:00 **1312.** Formation, isolation and properties of 5-formiminotetrahydrofolic acid. J. C. RABINOWITZ AND W. E. PRICER, JR.* *Natl. Insts. of Health.*

2:15 **1313.** Enzymatic steps in the formylation of tetrahydrofolic acid by formiminoglutamic acid in liver. H. TABOR. *Natl. Insts. of Health.*

2:30 **1314.** Hydroxymethyl tetrahydrofolic dehydrogenase. M. J. OSBORN AND P. T. TALBERT (intr. by B. GABRIO). *Univ. of Washington.*

2:45 **1315.** Enzymatic deacylation of N^{10}-formyl tetrahydrofolic acid. F. M. HUENNEKENS. *Univ. of Washington.*

3:00 **1316.** Role of vitamins in neogenesis of methyl group of methionine in vitro. V. M. DOCTOR* AND J. AWAPARA. *Univ. of Texas M. D. Anderson Hosp. and Tumor Inst.*

3:15 **1317.** Biosynthesis of thiamine. D. L. HARRIS AND J. YAVIT.* *Univ. of Chicago.*

3:30 **1318.** Synthesis and biological properties of analogs of vitamin B_1. J. F. CODINGTON AND H. M. WUEST (intr. by I. GOODMAN). *Sloan-Kettering Inst. for Cancer Research.*

3:45 **1319.** Pyrimidine moiety of thiamine: antimetabolite action of analogs. R. GUTHRIE, MAUDE E. LOEBECK, MARILYN J. HILLMAN AND H. TIECKELMANN (intr. by C. CARRUTHERS). *Roswell Park Memorial Inst. and Univ. of Buffalo.*

Metabolism of Sugars

FRIDAY, 1:00 P.M.—PALMER HOUSE, DINING ROOM 14

Chairman: M. L. Karnovsky

1:00 **1320.** Synthesis of lactose in the cow: distribution of C^{14} in glucose and galactose. H. G. WOOD, P. SIU* AND P. SCHAMBYE.* *Western Reserve Univ. and Royal Veterinary College, Copenhagen.*

1:15 **1321.** Liver maltose and its higher homologues: an unexplored area of carbohydrate metabolism. W. H. FISHMAN AND HSIEN-GIEH SIE.* *Tufts Univ. School of Medicine.*

1:30 **1322.** Origin of the carbon atoms of L-rhamnose. G. HAUSER* AND M. L. KARNOVSKY. *Harvard Med. School.*

1:45 **1323.** Inhibition of growth of E. coli mutants by galactose. K. KURAHASHI AND A. J. WAHBA (intr. by H. M. KALCKAR). *Natl. Insts. of Health.*

2:00 **1324.** The α-galactosidase of Aerobacter aerogenes; its characteristics and induced synthesis. D. S. HOGNESS AND E. H. BATTLEY (intr. by D. H. BROWN). *Washington Univ. School of Medicine.*

2:15 **1325.** Action of transgalactosylase of Saccharomyces fragilis on galactosyl oligosaccharides. C. L. TIPTON,* JEAN M. MARSH* AND J. H. PAZUR. *Univ. of Nebraska.*

2:30 **1326.** Enzymatic synthesis of glucosamine-6-phosphate in rat liver. B. M. POGELL AND R. M. GRYDER (intr. by E. K. MARSHALL, JR.). *Johns Hopkins Med. School.*

2:45 **1327.** Comparison of bacterial and

mammalian hexosamine-phosphate deaminases. D. G. COMB* AND S. ROSEMAN. *Univ. of Michigan.*

3:00 **1328.** Biosynthesis of deoxyribose. I. A. BERNSTEIN AND DOROTHY SWEET.* *Univ. of Michigan Med. School.*

3:15 **1329.** Precursors of desoxyribose in rat liver studied with C^{14}-labeled glycine. W. W. SHREEVE AND A. GROSSMAN.* *Brookhaven Natl. Lab.*

3:30 **1330.** Metabolism of D-ribose in man. S. SEGAL, J. FOLEY AND J. WYNGAARDEN (intr. by F. DAFT). *Natl. Insts. of Health.*

3:45 **1331.** Ribose formation from acetate in Alkaligenes faecalis. W. VISHNIAC AND FAITH N. BRENNEMAN.* *Yale Univ.*

PAPER READ BY TITLE

1332. Activities of respiratory systems of Azotobacter agile A44 following ultraviolet irradiation. C. R. GOUCHER* AND W. KOCHOLATY. *Army Med. Research Lab.*

THE AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

Forty-seventh Annual Meeting

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 15, 1:30 p.m.

Cardiovascular I

MONDAY, 1:30 P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: G. K. Moe

1:30 **1333.** Toxic effects of cardiac glycosides and antidotal effects of different compounds in the cat. RUDOLF P. BIRCHER AND SUHAYL J. JABBUR (intr. by S. C. WANG). *Sandoz Pharmaceuticals and Columbia Univ.*

1:45 **1334.** Digoxin effect on heart ATPase. CHARLES D. PROCTOR AND GIOIA S. MUELLER (intr. by Y. T. OESTER). *Stritch School of Medicine.*

2:00 **1335.** Serum protein binding of radioactive digitoxin. J. L. SPRATT,* G. T. OKITA AND E. M. K. GEILING. *Argonne Cancer Research Hosp.*

2:15 **1336.** Hepatic regulation of cardiac glycoside action. TSUNEYOSHI TANABE AND MAMORU TANAKA (intr. by M. H. SEEVERS). *Sapporo Med. College, Japan, and Univ. of Michigan.*

2:30 **1337.** Effect of estrogens on response of cardiac glycogen to digoxin. W. O. READ. *Univ. of South Dakota.* (Physiol.)

2:45 **1338.** Acute toxicity of acetyl strophanthidin. A. H. RYAN, W. WEIL,* J. SPINZIA* AND S. SOREN.* *Chicago Med. School.* (Physiol.)

3:00 **1339.** Possible role of potassium imbalance in cardiac actions of ouabain. P. BASS* AND K. I. MELVILLE. *McGill Univ.*

3:15 **1340.** Persistence of rhythmic pacemaker activity during ouabain-induced asystole in isolated rabbit atria. THEODORE C. WEST AND JOSEPH V. LEVY.* *Univ. of Washington School of Medicine.*

3:30 **1341.** Influence of ambonestyl on ouabain-induced cardiotoxicity. RAYMOND H. WHEELOCK* AND BYRON B. CLARK. *Tufts Univ. School of Medicine.*

3:45 **1342.** A new hypotensive steroid. F. M. STURTEVANT. *G. D. Searle and Co.*

4:00 **1343.** Cardiotonic structure-activity relationship of the steroid nucleus. RALPH D. TANZ* AND RICHARD W. WHITEHEAD. *Univ. of Colorado School of Medicine.*

4:15 **1344.** Cardiovascular and bronchiolar properties of narcotine hydrochloride. LAWRENCE C. WEAVER, WILLIAM M. ALEXANDER,* W. RALPH JONES,* ALICE B. RICHARDS* AND BENEDICT E. ABREU. *Pitman-Moore Co.*

Autonomics I

MONDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD A

Chairman: James E. P. Toman

1:30 **1345.** Catecholamine biosynthesis in patients with pheochromocytoma. ALBERT SJOERDSMA*, LEMUEL C. LEEPER* AND SIDNEY UDENFRIEND. *Natl. Heart Inst.*

1:45 **1346.** Release of norepinephrine from the isolated heart. J. A. RICHARDSON AND E. F. WOODS.* *Med. College of South Carolina.*

2:00 **1347.** Biosynthesis of norepinephrine

and epinephrine by the isolated, perfused calf adrenal. GEORGE ROSENFELD,* LEMUEL C. LEEPER* AND SIDNEY UDENFRIEND. *Naval Med. Research Inst. and Natl. Heart Inst.*

2:15 **1348.** Depressor response produced by epinephrine administration to the cross-circulated head. RICHARD H. SCHNEIDER, LLOYD BECK AND DAVID F. BOHR (intr. by M. H. SEEVERS). *Univ. of Michigan.*

2:30 **1349.** Blockade of adrenergic inhibitory receptor sites by 1-(3′,4′-dichlorophenyl)-2-isopropylaminoethanol hydrochloride. I. H. SLATER AND C. E. POWELL.* *Lilly Research Lab.*

2:45 **1350.** Peripheral blood epinephrine levels following intravenous administration of the material. D. T. WATTS AND T. R. POOLE.* *West Virginia School of Medicine.*

3:00 **1351.** Factors distinguishing classical competitive from non-equilibrium drug antagonism. MARK NICKERSON AND ELSIE H. MORTHAM.* *Univ. of Manitoba.*

3:15 **1352.** Mechanism of ascorbic acid-induced oxidation of epinephrine and norepinephrine. M. JANE OESTERLING (intr. by MARION FAY). *Woman's Med. College of Pennsylvania.* (Biochem.)

3:30 **1353.** Epinephrine, adrenalectomy and trauma induced decrease in mouse liver NPSH. LYLE V. BECK AND VIRGINIA D. RIECK.* *Univ. of Pittsburgh School of Medicine.*

3:45 **1354.** Effects of epinephrine on glycogenolysis, phosphorylase, and glucose-6-phosphate in various tissues. SYDNEY ELLIS, JOSEPHINE MCGILL* AND HILTON L. ANDERSON, JR.* *Temple Univ. School of Medicine.*

4:00 **1355.** Inhibition of the adrenergic depressor response. B. LEVY* AND R. P. AHLQUIST. *Med. College of Georgia.*

4:15 **1356.** Urinary epinephrine and norepinephrine excretion during acute alcohol intoxication in dogs. GERDA I. KLINGMAN AND MCC. GOODALL (intr. by FREDERICK BERNHEIM). *Duke Univ. School of Medicine.*

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 505, Conrad Hilton, where owners may claim them on proper identification.

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Tuesday Morning, April 16, 9:00 a.m.

Cardiovascular II

TUESDAY, 9:00 A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: James A. Richardson

9:00 **1357.** Antifibrillary effects of glycine in hypothermia. W. R. BEAVERS AND B. G. COVINO (intr. by M. B. SLOMKA). *Arctic Aeromed. Lab.*

9:15 **1358.** Role of potassium in epinephrine-induced cardiac arrhythmias. PETER E. DRESEL AND MARK NICKERSON. *Univ. of Manitoba Faculty of Medicine.*

9:30 **1359.** Effects of Methitural on the cardio-vascular system. CHARLES M. GRUBER AND LESTER H. LONERGAN.* *College of Med. Evangelists.*

9:45 **1360.** Effect of succinylcholine on cardiac arrhythmias. PHILIP HITCHCOCK, JOSEPH R. DIPALMA AND ALFRED J. CATENACCI.* *Hahnemann Med. College and Hosp.*

10:00 **1361.** Possible mechanism of action of quinidine. W. C. HOLLAND. *Vanderbilt Med. School.*

10:15 **1362.** Atrial fibrillation and hypopotassemia. PHILLIP E. LEVEQUE (intr. by R. P. AHLQUIST). *Med. College of Georgia.*

10:30 **1363.** Methitural cardiac arrhythmia in dogs as influenced by sympathomimetic amines. L. H. LONERGAN* AND C. M. GRUBER. *College of Med. Evangelists.*

10:45 **1364.** An electrocardiographic study of the action of quinidine in the dog. E. L. MCCAWLEY, H. L. H. DICK,* D. V. VOISS* AND J. D. KRUEGER.* *Univ. of Oregon Med. School.*

11:00 **1365.** Cardiac arrhythmias from veratrine and protoveratrine. HENRY H. SWAIN AND DUNCAN MCCARTHY, JR. (intr. by M. H. SEEVERS). *Univ. of Michigan.*

11:15 **1366.** Hemodynamic responses to rescinnamine (Moderil). D. E. HUTCHEON, V. KOZLER* AND D. MORRIS.* *Chas. Pfizer and Co., Inc.*

11:30 **1367.** Effect of reserpine upon the mammalian heart. M. K. PAASONEN* AND O. KRAYER. *Harvard Med. School.*

Drug Metabolism and Enzymology I

TUESDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD A

Chairman: Norman A. David

9:00 **1368.** Stimulatory effect of drugs on excretion of l-ascorbic acid and non-conjugated d-glucuronic acid. J. J. BURNS, CAROLE EVANS,* NATALIE TROUSOF* AND JANE KAPLAN.* *Natl. Insts. of Health and New York Univ.*

9:15 **1369.** Urinary excretory products of atropine. J. H. WILLS, S. C. KALSER,* C. F. EPES* AND J. D. GABOUREL.* *Army Chem. Ctr.*

9:30 **1370.** Metabolic fate of acetazoleamide S^{35} (Diamox) in the cat. L. B. ACHOR* AND L. J. ROTH. *Univ. of Chicago.*

9:45 **1371.** Atropine detoxication in mice and rats. JOHN D. GABOUREL* AND ROBERT E. GOSSELIN. *Univ. of Rochester Med. Ctr.* (Physiol.)

10:00 **1372.** Conjugation and excretion of aminobenzoic acids. K. C. HUANG* AND P. K. KNOEFEL. *Univ. of Louisville School of Medicine.*

10:15 **1373.** Urinary metabolites of atropine as a function of dosage. SARAH C. KALSER (intr. by J. H. WILLS). *Army Chem. Ctr.*

10:30 **1374.** Metabolism of glycerol esterified with palmitic and lactic acid. HERBERT MCKENNIS, JR.*, L. B. TURNBULL,* HARVEY B. HAAG AND PAUL S. LARSON. *Med. College of Virginia.*

10:45 **1375.** Urinary metabolites of thiopental in rat, dog and man. WALLACE D. WINTERS. *Marquette Med. School.*

11:00 **1376.** Mechanism of intestinal absorption of drugs. C. ADRIAN M. HOGBEN,* LEWIS S. SCHANKER* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

11:15 **1377.** Gastric juice studies in rats. HARRY ROSEN,* ALBERT BLUMENTHAL,* MARY H. NEAD,* RICHARD TISLOW AND JOSEPH SEIFTER. *Wyeth Inst. for Med. Research.*

11:30 **1378.** Absorption of drugs by the human stomach. LEWIS S. SCHANKER AND C. ADRIAN M. HOGBEN (intr. by BERNARD B. BRODIE). *Natl. Heart Inst.*

Central Nervous System I

TUESDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD C

Chairman: W. Clarke Wescoe

9:00 **1379.** Influence of pentobarbital on ventral root reflex discharges and on intracellular potentials recorded from single motoneurons. JAMES B. PRESTON. *State Univ. of New York College of Medicine.*

9:15 **1380.** Drug transfer from blood to cerebrospinal fluid. DAVID P. RALL AND CHARLES G. ZUBROD. *Natl. Cancer Inst.*

9:30 **1381.** Megimide as a doriden antagonist. DONALD T. WALZ,* FREDERICK F. COWAN, JR.* AND THEODORE KOPPANYI. *Georgetown Univ. Schools of Medicine and Dentistry.*

9:45 **1382.** Phthalimide compounds in acute barbiturate poisoning. LAWRENCE F. SANCILIO,* THEODORE KOPPANYI, LEONARD M. RICE* AND CHARLES F. GESCHICKTER.* *Georgetown Univ. Schools of Medicine and Dentistry.*

10:00 **1383.** Stimulation of respiration by 2-methylamino-6-methyl heptane. DAVID C. JERRAM,* BERWIN MONROE,* FREDERICK SPENCER* AND LLOYD D. SEAGER. *Univ. of Arkansas Med. Ctr.*

10:15 **1384.** Determination of doriden. LEO R. GOLDBAUM, MELVIN WILLIAMS* AND THEODORE KOPPANYI. *Armed Forces Inst. of Pathology and Georgetown Med. School.*

10:30 **1385.** Central respiratory depressant effect of "hemicholinium". Y. KASÉ* AND H. L. BORISON. *Univ. of Utah College of Medicine.*

10:45 **1386.** Emetic effects of nicotine and lobeline. R. J. LAFFAN* AND H. L. BORISON. *Univ. of Utah College of Medicine.*

11:00 **1387.** Comparative study of the pigeon emetic method and proposed chemical methods for the assay of Rauwolfia. H. A. BRAUN AND L. M. LUSKY.* *Food and Drug Admin.*

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lower Lobby of the Conrad Hilton to locate friends. Take the numbered cards on the message boards to the information desk, the attendant will give you messages left for you.

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton
Exhibit Manager's Office, Exhibition Hall, Conrad Hilton

Tuesday Afternoon, April 16, 1:30 p.m.

Psychopharmacology I

TUESDAY, 1:30 P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Seymour S. Kety

1:30 **1388.** Nature of serotonin binding in tissues. F. B. HUGHES,* R. KUNTZMAN* AND P. A. SHORE. *Natl. Heart Inst.*

1:45 **1389.** Serotonin and acetylcholine assay with isolated tissues. THOMAS J. HALEY AND JAMES L. LEITCH.* *Univ. of California at Los Angeles.*

2:00 **1390.** Occurrence and possible role of serotonin in Fasciola hepatica. TAG E. MANSOUR, ARGIMIRO D. LAGO* AND JAMES L. HAWKINS.* *Louisiana State Univ. School of Medicine.*

2:15 **1391.** Presence of 5-hydroxytryptamine (serotonin) in perfusate from sympathetic ganglia. S. B. GERTNER,* M. K. PAASONEN* AND N. J. GIARMAN. *Columbia Univ. and Yale Univ.*

2:30 **1392.** Alterations in rat brain 5-hydroxytryptamine levels by antiepileptic drugs. D. D. BONNYCASTLE, M. K. PAASONEN* AND N. J. GIARMAN. *Yale Univ.*

2:45 **1393.** Effectiveness of iproniazid on 5-hydroxytryptamine (serotonin) destruction in vivo. HERBERT WEISSBACH,* DONALD F. BOGDANSKI,* BETTY REDFIELD* AND SIDNEY UDENFRIEND. *Natl. Heart Inst.*

3:00 **1394.** Effect of chlorpromazine on antidiuresis produced by 5-hydroxytryptamine in rats. S. R. DASGUPTA (intr. by EVA KING KILLAM). *School of Tropical Medicine, Calcutta.*

3:15 **1395.** Effects of ethyl alcohol on component movements of human motions. K. U. SMITH,* S. HARRIS* AND F. E. SHIDEMAN. *Univ. of Wisconsin.*

3:30 **1396.** Combined effect of tranquilizing drugs and alcohol on rats. R. C. B. GRAHAM,* F. C. LU AND M. G. ALLMARK.* *Dept. of Natl. Health and Welfare, Ottawa.*

Autonomics II

TUESDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD A

Chairman: George B. Koelle

1:30 **1397.** Ganglionic stimulating and parasympathomimetic actions of imidazolepropionylcholine (Dihydromurexine) and imidazoleacrylcholine (Murexine) in chloralosed dogs. MARTIN M. WINBURY, JOANNE K. WOLF* AND I. I. A. TABACHNICK.* *Schering Corp.*

1:45 **1398.** Carotid chemoreceptor stimulation by nicotine and some sympathomimetic amines. ROBERT BYCK (intr. by J. H. COMROE, JR.). *Univ. of Pennsylvania Grad. School of Medicine.*

2:00 **1399.** Influence of cocaine HCl upon the depressor response to epinephrine. ROBERT A. WOODBURY AND ROBERT R. SHIPP.* *Univ. of Tennessee Med. Units.*

2:15 **1400.** Development of tachyphylaxis by the papillary muscle to d-amphetamine sulfate. FLOYD DAVIS,* J. T. OLIVER* AND ROBERT A. WOODBURY. *Univ. of Tennessee Med. Units.*

2:30 **1401.** Lidocaine sensitization of the in vitro rat uterus to the action of epinephrine. J. E. GIERING* AND A. P. TRUANT. *Astra Biological Labs.*

2:45 **1402.** Some antispasmodic actions of Hydroxyzine. THEODORE R. SHERROD AND GUSTAVUS A. BOBB.* *Univ. of Illinois College of Medicine.*

3:00 **1403.** Tachyphylaxis to phenylpropanolamine and methoxamine in perfused vascular tissue from dogs. ERNEST A. DAIGNEAULT (intr. by ROBERT A. WOODBURY). *Univ. of Tennessee Med. Units.*

3:15 **1404.** Histamine tolerance in thymectomized rats and guinea pigs. RITSU N. ARISON* AND HERBERT C. STOERK. *Merck Inst. for Therapeutic Research.* (Pathol.)

3:30 **1405.** Evaluation of antispasmodics by an in vivo test in mice. HAROLD BLUMBERG, HYMAN B. DAYTON* AND SAMUEL M. GORDON.* *Endo Laboratories, Inc.*

3:45 **1406.** A pharmacologic and toxicologic study of a new series of antispasmodic compounds with special reference to structure and pharmacologic activity. HAROLD H. BRYANT,* LLOYD C. FELTON* AND JOHN C. KRANTZ, JR. *Univ. of Maryland School of Medicine and Hynson, Westcott & Dunning, Inc.*

4:00 **1407.** Synergistic action of atropine and antihistaminics. ROBERT A. EVANS,* BERNICE DERTINGER* AND N. ERCOLI. *Armour Labs.*

4:15 **1408.** Prolonged antihistaminic action of a series of thianaphthindoles. A. J. PLUMMER, W. E. BARRETT,* R. RUTLEDGE* AND L. WERNER.* *Ciba Pharmaceutical Products, Inc.*

Chemotherapy

TUESDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD C

Chairman: P. K. Smith

1:30 **1409.** Antiviral activity bioflavonoids. D. M. GREEN, S. YOSHIMURA* AND L. S. D'AGROSA.* *Grove Labs., Inc.*

1:45 **1410.** Effect of streptomycin on ammonia assimilation by Pseudomonas aeruginosa. W. E. DETURK. *Duke Univ. School of Medicine.*

2:00 **1411.** Effect of M5-11496 on experimental poliomyelitis. KENNETH W. COCHRAN AND MARY H. JONES.* *Univ. of Michigan.*

2:15 **1412.** Effects of alkyldibenzylamines on Schistosoma mansoni. ERNEST BUEDING AND NOEL PENEDO.* *Louisiana State Univ. School of Medicine.*

2:30 **1413.** Ring closure and fungistatic activity. ALFRED A. RENZI, ANNA C. GARNER AND ALFRED BURGER (intr. by LAWRENCE J. MILCH). *School of Aviation Medicine and Univ. of Virginia.*

2:45 **1414.** Protection by human gamma globulin against Pseudomonas aeruginosa infections in mice. R. CARL MILLICAN, SANFORD M. ROSENTHAL AND JOHN D. RUST.* *Natl. Insts. of Health.*

3:00 **1415.** Influence of bioflavonoids in a small controlled series of respiratory infections in children. ROBERT L. KORN AND WILLIAM T. K. BRYAN (intr. by D. M. GREEN). *St. Vincent's German Orphan Home and Washington Univ. School of Medicine.*

3:15 **1416.** Effect of ascorbic acid on antiviral activity of bioflavonoids. S. YOSHIMURA,* L. S. D'AGROSA* AND D. M. GREEN. *Grove Labs., Inc.*

3:30 **1417.** A new method for testing fungicidal action in vitro. GIOK HOA TAN,* THOMAS N. BURBRIDGE* AND HAMILTON H. ANDERSON. *Univ. of California School of Medicine.*

3:45 **1418.** Toxicity and pharmacologic properties of noformicin. HARRY J. ROBINSON, OTTO E. GRAESSLE,* ROBERT B. STEBBINS* AND HENRY SIEGEL.* *Merck Inst. for Therapeutic Research and Albert Einstein College of Medicine.*

Pharmacology Society Business Meeting

TUESDAY, 4:30 P.M.—CONRAD HILTON, WALDORF ROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Program on page 446

Wednesday Morning, April 17, 9:00 a.m.

Drug Metabolism and Enzymology II

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Arnold D. Welch

9:00 **1419.** Biosynthesis of ricinine. ADELAIDE M. DELLUVA,* ULRICH SCHIEDT* AND SAMUEL GURIN. *Univ. of Pennsylvania and Max-Planck-Inst. für Biochemie, Munich.* (Biochem.)

9:15 **1420.** Enzymatic syntheses of N-glucuronic acid conjugates. JULIUS AXELROD, JOSEPH K. INSCOE* AND GORDON H. TOMKINS.* *Natl. Insts. of Health.*

9:30 **1421.** Effect of certain carbonyl compounds on glyoxalase activity. G. R. MCKINNEY. *West Virginia Univ. School of Medicine.*

9:45 **1422.** Influence of steroid hormones on oxidation of organic thiophosphates. SHELDON D. MURPHY* AND KENNETH P. DUBOIS. *Univ. of Chicago.*

10:00 **1423.** Effect of secretin on diastase in serum and urine in normal, pancreatectomized and pancreatic fistula dogs. MARTIN M. NOTHMAN AND ALLAN D. CALLOW.* *New England Med. Ctr. and Tufts Univ. School of Medicine.*

10:15 **1424.** Histochemical determinations of glyceraldehyde phosphate and glycerophosphate dehydrogenases in brain. ROBERT T. SCHIMKE (intr. by OLIVER H. LOWRY). *Washington Univ. and Stanford Univ.*

10:30 **1425.** Inhibitory effect of β-aminoethylisothiuronium (AET) on sulfhydryl enzymes. GERALD R. ZINS* AND KENNETH P. DUBOIS. *Univ. of Chicago.*

10:45 **1426.** Derivative method for aromatic amines. WALTER TROLL,* IRENE LEUPIN* AND NORTON NELSON. *New York Univ.* (Biochem.)

11:00 **1427.** Metabolism of chlorinated naphthalenes. HERBERT H. CORNISH,* WALTER D. BLOCK AND THOMAS DAMBRAUSKAS.* *Univ. of Michigan.* (Biochem.)

11:15 **1428.** Conjugation of m-aminophenol by tissue slices from cold exposed rats. A. HORITA AND M. E. DENISON (intr. by A. D. KELLER). *Army Med. Research Lab.* (Physiol.)

Blocking Agents

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD A

Chairman: John H. Moyer

9:00 **1429.** Respiratory and cardiovascular effects of nicotine in the cat and dog. CARL C. GRUHZIT. *Univ. of Pennsylvania.*

9:15 **1430.** Pharmacology of diammonio esters. JOHN HIDALGO* AND VICTOR P. SEEBERG. *Cutter Labs.*

9:30 **1431.** Effect of protamine on the neuromuscular junction. E. G. ANDERSON,* E. A. SCHENK* AND D. F. MAGEE. *Univ. of Washington School of Medicine.* (Physiol.)

9:45 **1432.** Physiologic disposition of hexamethonium and chemically related compounds. RUTH R. LEVINE AND BYRON B. CLARK. *Tufts Univ. School of Medicine.*

10:00 **1433.** Ganglionic blockade in unanesthetized dogs and anesthetized hamsters. R. A. MAXWELL,* S. ROSS* AND A. J. PLUMMER. *Ciba Pharmaceutical Products Inc.*

10:15 **1434.** Pharmacological evaluation of certain ethers derived from diphenylethanol. BERNARD V. FRANKO* AND J. K. FINNEGAN. *Med. College of Virginia.*

10:30 **1435.** Comparative effects of ganglionic blocking agents on the alimentary canal and urinary bladder. N. B. DREYER. *Woman's Med. College of Pennsylvania.*

10:45 **1436.** An evaluation of the interaction of the guanidinium ion with several neuromuscular blocking agents on a mammalian neuromuscular preparation. G. A. CONDOURIS AND A. GHAZAL (intr. by W. F. RIKER). *Cornell Univ. Med. College.*

11:00 **1437.** Acetylcholine effects on the nictitating membrane, II. GLORIA COMULADA FEENEY (intr. by THEODORE KOPPANYI). *Georgetown Univ. Schools of Medicine and Dentistry.*

Central Nervous System II

WEDNESDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD C

Chairman: F. Edmund Hunter, Jr.

9:00 **1438.** Action of ergotamine on the cerebral venous pressure of the dog previously

treated by a histamine liberator. S. B. GERTNER, M. VIRNO, A. CARPI AND D. BOVET (intr. by LESTER C. MARK). *Istituto Superiore di Sanità, Rome.*

9:15 **1439.** Biochemical mechanism of acetaldehyde uncoupling of oxidative phosphorylation. M. JOSEPH REHAK* AND EDWARD B. TRUITT, JR. *Univ. of Maryland School of Medicine.*

9:30 **1440.** Effects of various drugs on the duration of intradermal anesthesia produced by a dental anesthetic solution. F. P. LUDUENA. *Sterling-Winthrop Research Inst.*

9:45 **1441.** Comparative study of peripheral effects of fluothane, cyclopropane, ether and chloroform upon muscular contraction in rabbits. D. C. WATLAND,* J. P. LONG AND C. B. PITTINGER. *State Univ. of Iowa College of Medicine.*

10:00 **1442.** Cardiovascular and respiratory effects of fluothane anesthesia in dogs. C. B. PITTINGER, J. P. LONG, D. C. WATLAND* AND S. C. CULLEN. *State Univ. of Iowa College of Medicine.*

10:15 **1443.** Spectrophotometric assay of barbiturates. MILTON T. BUSH. *Vanderbilt Univ. School of Medicine.*

10:30 **1444.** Effect of blood pH on barbiturate sleeping time in mice. JOSEPH F. BORZELLECA (intr. by N. B. DREYER). *Woman's Med. College of Pennsylvania.*

10:45 **1445.** Effect of orally administered corn oil on distribution of thiopental in various tissues of the rat. JOAN C. BLASKOVICS* AND WALLACE D. WINTERS. *Marquette Med. School.*

11:00 **1446.** Increased ventilation after pentobarbital in man. ARTHUR S. KEATS AND YOSHIO KUROSU.* *Baylor Univ. College of Medicine and Jefferson Davis Hosp.*

11:15 **1447.** Effect of boric acid and sodium metaborate on oxygen uptake of brain tissues. ALFRED S. C. LING,* EDWARD B. TRUITT, JR. AND JOHN C. KRANTZ, JR. *Univ. of Maryland School of Medicine.*

11:30 **1448.** Effect of chlorpromazine on oxygen consumption by tissue slices. ALBERT S. MORACZEWSKI* AND KENNETH P. DUBOIS. *Univ. of Chicago.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Registration

Registration Desks are located in the following places:

Conrad Hilton, Lower Lobby

Palmer House, Exhibition Hall

Wednesday Afternoon, April 17, 1:30 p.m.

Psychopharmacology II

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: George H. Acheson

1:30 **1449.** Action of epinephrine and of adrenochrome on oxidation of glycine in the presence and absence of rat tissues. MARGARET E. GREIG AND ANNA J. GIBBONS.* *Upjohn Co.*

1:45 **1450.** Release of brain norepinephrine by reserpine. P. A. SHORE, J. S. OLIN* AND B. B. BRODIE. *Natl. Heart Inst.*

2:00 **1451.** Aggregation, amphetamine and "tranquillizers". LOUIS LASAGNA AND WILLIAM P. MCCANN.* *Johns Hopkins Med. School.*

2:15 **1452.** Effects of tranquilizing drugs on cerebral cortical reactions to epinephrine. BRUNO MINZ. *Osawatomie State Hosp.*

2:30 **1453.** Determination of catechol amines in the plasma of psychiatric patients. JOSEPH REILLY AND PETER F. REGAN, III.* *Cornell Univ. Med. College and New York Hosp.*

2:45 **1454.** Synaptic activity relations of azacyclonol and analogs. E. ROSS HART, VICTOR H. COHN, JR.* AND AMEDEO S. MARRAZZI. *VA Hosp., Pittsburgh.*

3:00 **1455.** Effects of meprobamate on fear and palmar sweating. VICTOR G. LATIES (intr. by L. LASAGNA). *Johns Hopkins Med. School.*

3:15 **1456.** Effects of Sch 3940 and methylpentynyl carbamate on electrical activity of the brain: comparison with other CNS depressants. CHARLES D. HENDLEY. *Schering Corp.* (Physiol.)

3:30 **1457.** Effects of some centrally acting drugs on "treadmill" activity of mice exposed to ether. MAX HEINRICH, JR. *Univ. of South Dakota Med. School.*

3:45 **1458.** Effect of chlorpromazine on physical properties of bile. J. ALFRED RIDER, MAUREEN MEIKLE, LOURDES F. AGCAOILI AND JERE DEROIN (intr. by KENNETH P. DUBOIS). *Univ. of California.*

Endocrine I

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD A

Chairman: Robert S. Teague

1:30 **1459.** Time course studies of effect of estrogens on pituitary gonadotrophic function. GORDON O. POTTS AND ARTHUR L. BEYLER (intr. by E. W. DENNIS). *Sterling-Winthrop Research Inst.*

1:45 **1460.** Comparison of glycyrrhizin and cortisone on some phytotoxic sera. DAVID I. MACHT. *Sinai Hosp., Inc., Baltimore.*

2:00 **1461.** Effects of glycyrrhizin on pituitary-adrenal system of rats. SHIRLEY D. KRAUS,* H. A. FONROSE* AND WALTER M. BOOKER. *Howard Univ. Med. School.*

2:15 **1462.** Reversal by insulin of the impaired histamine release by dextran in diabetic rats. ANDRES GOTH, W. L. NASH,* M. E. NAGLER* AND JAMES HOLMAN.* *Univ. of Texas Southwestern Med. School.*

2:30 **1463.** Effect of hypophysectomy on adrenal ascorbic acid response to aspirin. JOAN K. TAYLOR* AND E. LEONG WAY. *Schools of Pharmacy and Medicine, Univ. of California.*

2:45 **1464.** Some effects of acute sublethal alcohol intoxication in intact and adrenalectomized dogs. HARVEY B. HAAG, GERDA I. KLINGMAN* AND RUBY BANE.* *Med. College of Virginia.*

3:00 **1465.** Quantitative effect of hydrocortisone on survival time of adrenalectomized rats administered a lethal dose of E. coli endotoxin. GEORGE H. GASS AND ERNEST J. UMBERGER (intr. by BERT J. VOS). *Food and Drug Admin.*

3:15 **1466.** Aerobic glycolysis values for hyperthyroid rat brain cortex slices. M. A. SPIRTES AND A. ANDOSE.* *Hahnemann Med. College.*

3:30 **1467.** Relative thymolytic activity of corticosteroids in the immature rat. N. R. STEPHENSON (intr. by C. A. MORRELL). *Food and Drug Directorate, Ottawa.*

3:45 **1468.** Effect of 2,2-bis-(para-ethylphenyl)-1, 1-dichloroethane (Perthane) on adrenocortical function in humans. I. TALIAFERRO AND L. LEONE (intr. by H. B. HAAG). *Med. College of Virginia.*

Analgesics I

WEDNESDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD C

Chairman: Harris Isbell

1:30 **1469.** Metabolic degradation of Propoxyphene, a new analgesic. HENRY M. LEE,

EARL G. SCOTT* AND ALBERT POHLAND.* *Lilly Research Labs.*

1:45 **1470.** Estimation of C^{14}-labeled levorphan in biological materials. L. A. WOODS. *Univ. of Michigan.*

2:00 **1471.** Estimation of heroin and morphine in biologic fluids. E. LEONG WAY. *Universitat Bern, Switzerland.*

2:15 **1472.** Biological disposition of C^{14}-labeled levorphan in dogs and monkeys. L. B. MELLETT* AND L. A. WOODS. *Univ. of Michigan.*

2:30 **1473.** Effects of levallorphan-meperidine combinations on respiration in man. ROBERT MEGIRIAN* AND CHESTER W. WHITE, JR. *Boston Univ. School of Medicine.*

2:45 **1474.** Morphine and meperidine as respiratory depressants in man. HERBERT WENDEL AND CHRISTIAN J. LAMBERTSEN. *Univ. of Pennsylvania.*

3:00 **1475.** Comparative respiratory depressant effects of morphine, meperidine and alphaprodine. CHESTER W. WHITE, JR., ROBERT MEGIRIAN* AND PHILLIP S. MARCUS.* *Boston City Hosp.*

3:15 **1476.** Plasma and urinary corticoids during a cycle of morphine addiction. ANNA J. EISENMAN,* H. F. FRASER* AND J. W. BROOKS.* *NIMH Addiction Research Ctr., Lexington.* (Biochem.)

3:30 **1477.** Urinary excretion of 5HIAA and corticoids after morphine, meperidine, nalorphine, reserpine and chlorpromazine. H. F. FRASER, ANNA J. EISENMAN* AND J. W. BROOKS.* *NIMH Addiction Research Ctr., Lexington.*

Pharmacology Society Dinner

WEDNESDAY, 7:00 P.M.—Conrad Hilton

Ticket Sales

Tickets for society dinners, special scientific dinner meetings, group luncheons and breakfasts, and other informal functions will be on sale in the Lower Lobby of the Conrad Hilton.

Thursday Morning, April 18, 9:00 a.m.

Cardiovascular III

THURSDAY, 9:00 A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Robert F. Furchgott

9:00 **1478.** Relationship between blood pressure and the common carotid occlusion pressor response with a critical analysis of previous methods. WALTER BAIRD, HAROLD HARDMAN, BERT K. B. LUM AND DANIEL SUITS (intr. by MAURICE SEEVERS). *Univ. of Michigan.*

9:15 **1479.** Effects of ephedrine and veratramine upon heart rate in the dog heart-lung preparation under A-V nodal rhythm. J. M. BENFORADO, J. DÖRNER AND J. FUENTES (intr. by OTTO KRAYER). *Harvard Med. School.*

9:30 **1480.** Electrolyte studies on coronary dog preparations. JOHN R. CUMMINGS* AND BYRON B. CLARK. *Tufts Univ. School of Medicine.*

9:45 **1481.** Nucleic acid derivatives in heart muscle. JANE S. ROBB. *State Univ. of New York, Upstate Med. Ctr.*

10:00 **1482.** Effect of some substances of metabolic interest on isolated auricles of the rat. V. M. VENTURI AND HOLLIS G. SCHOEPKE (intr. by F. E. SHIDEMAN). *Univ. of Wisconsin.*

10:15 **1483.** Protective effect of anti-hypertensive agents on vascular deterioration associated with hypertension. CHARLES HEIDER,* JACK BURGESS,* RALPH FORD,* KEITH PEVEY* AND JOHN MOYER. *Baylor Univ. College of Medicine.*

10:30 **1484.** Some physical and chemical characteristics of Rhodochlorin, a new cardiotropic compound. MERRILL J. HENDRICKSON AND HERBERT R. WETHERELL (intr. by A. R. MCINTYRE). *Univ. of Nebraska College of Medicine.*

10:45 **1485.** Factors affecting response of isolated rabbits' auricles to adenosine triphosphate. E. JONES* AND W. C. HOLLAND. *Vanderbilt Med. School.*

11:00 **1486.** Cardiovascular reactivity of recently nephrectomized dogs receiving peritoneal lavage. E. M. KRIEGER (intr. by R. P. AHLQUIST). *Med. College of Georgia.*

11:15 **1487.** Effect of varying potassium ion concentration on resuscitability of the isolated mammalian heart. ALLEN W. GOMOLL* AND THEODORE R. SHERROD. *Univ. of Illinois College of Medicine.*

11:30 **1488.** A comparative study of the resuscitability of several species of isolated mammalian hearts. RICHARD J. WENDEL* AND THEODORE R. SHERROD. *Univ. of Illinois College of Medicine.*

11:45 **1489.** A comparative study of inotropic actions of certain quaternary ammonium compounds. WOO CHOO LEE* AND F. E. SHIDEMAN. *Univ. of Wisconsin Med. School.*

Toxicology I

THURSDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD A

Chairman: Elliott A. Maynard

9:00 **1490.** Mechanism of hemolytic anemia induced by nitrofurantoin (Furadantin). EXALL L. KIMBRO, JR., MARIE V. SACHS AND JOHN V. TORBERT, JR. (intr. by E. K. MARSHALL, JR.). *Johns Hopkins Univ.*

9:15 **1491.** Beneficial effect of serotonin and compound F on E. coli endotoxin mortality in mice. PAUL GORDON AND MORRIS A. LIPTON (intr. by J. A. WELLS). *Northwestern Univ. Med. School.*

9:30 **1492.** Comparative pharmacological studies of Crotalus adamanteus and Naja flava venoms. JACK L. RADOMSKI AND WILLIAM B. DEICHMANN. *Univ. of Miami School of Medicine.*

9:45 **1493.** Chronic toxicity and tissue distribution of Orange B. DUANE W. HALLESY (intr. by JOHN DOULL). *Univ. of Chicago.*

10:00 **1494.** Acute hemorrhagic effects of a mixture of cellulose gum and Veegum administered intraperitoneally. JAMES Y. P. CHEN. *Marquette Univ. Med. School.*

10:15 **1495.** Toxicity of Crotalus adamanteus (rattlesnake) venom and antidotal effects of hydrocortisone. WILLIAM B. DEICHMANN, JOHN E. DEES,* M. L. KEPLINGER,* JOHN J. FARRELL* AND WILLIAM E. MACDONALD, JR.* *Univ. of Miami School of Medicine.*

10:30 **1496.** Dermal toxicity of ethanolamines in topical preparations. FRANCIS X. WAZETER,* ELSIE A. KELLEY,* JOHN H. DRAIZE AND ROBERT E. ZWICKEY.* *Food and Drug Admin.*

10:45 **1497.** Toxicity studies on pentachloronitrobenzene. J. K. FINNEGAN, PAUL S. LAR-

SON, R. BLACKWELL SMITH, JR., H. B. HAAG AND GORDON R. HENNIGAR.* *Med. College of Virginia.*

11:00 **1498.** Protection against furfuralacetone toxicity by chloroform poisoning. M. G. HARDINGE, R. HARVEY AND B. FUJIKAWA (intr. by CHARLES M. GRUBER SR.). *College of Medical Evangelists School of Medicine.*

11:15 **1499.** Acetylation of hydrazine and its relation to hydrazine lethality. JOHN F. O'LEARY, AILI H. OIKEMUS AND LAWRENCE J. EDBERG (intr. by J. H. WILLS). *Army Chem. Ctr.*

11:30 **1500.** Comparative hepatotoxicity of seven halogenated hydrocarbons. G. L. PLAA,* E. A. EVANS* AND C. H. HINE. *Univ. of California School of Medicine.*

Anticonvulsants

THURSDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD C

Chairman: Lowell O. Randall

9:00 **1501.** Effects of nitrate, iodide, bromide and sulfate on maximal electroshock seizures. DIXON M. WOODBURY, ALAN R. KOCH* AND N. K. CHAKRAVARTY.* *Univ. of Utah College of Medicine.*

9:15 **1502.** Action of synchronizing and desynchronizing drugs on strychnine induced convulsive cortical activity. B. SILVESTRINI, V. G. LONGO AND D. BOVET (intr. by K. R. UNNA). *Istituto Superiore di Sanità, Italy.*

9:30 **1503.** Metabolism of 4-C^{14}-labeled diphenylhydantoin in rats. E. L. NOACH,* DIXON M. WOODBURY AND L. S. GOODMAN. *Univ. of Utah College of Medicine.*

9:45 **1504.** Seizure patterns in rats in relation to age and development of brain carbonic anhydrase. J. GORDON MILLICHAP (intr. by ALFRED GILMAN). *Albert Einstein College of Medicine.*

10:00 **1505.** Action of the histamine releaser 48/80 on certain ataractic agents. J. D. MCCOLL AND P. SACRA (intr. by K. I. MELVILLE). *Frank W. Horner Ltd., Montreal.*

10:15 **1506.** Pharmacological activity of 2-amino-5-chlorobenzoxazole (ZOXAZOLAMINE, Flexin): II, duration of action. DAVID FIELDING MARSH. *McNeil Labs., Inc.*

10:30 **1507.** Effects of trimethadione on synaptic transmission in the spinal cord; antagonism between trimethadione and pentylenetetrazol. DON W. ESPLIN AND E. M. CURTO (intr. by LOUIS S. GOODMAN). *Univ. of Utah College of Medicine.*

10:45 **1508.** Effect of Methocarbamol on human skeletal muscle hyperactivity. FRANCIS A. VAZUKA,* NORMA HAJEK-NICHOLS AND JACK FREUND.* *McGuire VA Hosp. and Med. College of Virginia.* (Physiol.)

11:00 **1509.** Antagonism of nicotine and some CNS depressants in mice. GRAHAM CHEN AND BARBARA BOHNER.* *Parke, Davis and Co.*

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton

Exhibit Manager's Office, Exhibition Hall, Conrad Hilton

Thursday Afternoon, April 18, 1:30 p.m.

Psychopharmacology III

THURSDAY, 1:30 P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Frank M. Berger

1:30 **1510.** Screening new compounds: criteria for ataractic effects. FREDERICK SPERLING. *Sperling Labs.*

1:45 **1511.** A survey of d-lysergic acid diethylamide (LSD) antagonists. JOHN T. ELDER, JR.,* JOHN H. GOGERTY* AND JAMES M. DILLE. *Univ. of Washington School of Medicine.*

2:00 **1512.** Modifications of the actions of LSD-25 by reserpine. JOHN H. GOGERTY, JOHN T. ELDER AND AKIRA HORITA (intr. by J. M. DILLE). *Univ. of Washington School of Medicine.*

2:15 **1513.** Threshold doses of LSD in human subjects. THEODORE GREINER, NEIL R. BURCH* AND ROBERT EDELBERG*. *Baylor Univ. College of Medicine.*

2:30 **1514.** Comparison of pyretogenic action of 5-hydroxytryptophan (HTP) and lysergic acid diethylamide (LSD). AKIRA HORITA AND JOHN H. GOGERTY (intr. by J. M. DILLE). *Univ. of Washington School of Medicine.*

2:45 **1515.** Depressor action of reserpine. R. P. AHLQUIST. *Med. College of Georgia.*

3:00 **1516.** Psychic effects of combined administration of Rauwolfia alkaloids and iproniazid. EDMUND W. J. DEMAAR, A. I. MILLER AND HARRY L. WILLIAMS (intr. by C. C. PFEIFFER). *Emory Univ.*

3:15 **1517.** Evidence that chlorpromazine exerts a generalized central sympatholytic action. SYDNEY SPECTOR,* DONALD F. BOGDANSKI* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

3:30 **1518.** Comparison of central actions of cocaine and LSD. DONALD F. BOGDANSKI AND SYDNEY SPECTOR (intr. by BERNARD B. BRODIE). *Natl. Heart Inst.*

3:45 **1519.** Chlorpromazine blockade of water imbibition by frog gastrocnemius. EILEEN T. ECKHARDT* AND WILLIAM M. GOVIER. *Schering Corp.*

Endocrine II

THURSDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD A

Chairman: Charles F. Code

1:30 **1520.** Distribution of oxytocin, vasopressin and intermedin in the hypophysis of the beaver. FRANCES O. KELSEY, LOWELL SORENSEN* AND H. J. CLAUSEN.* *Univ. of South Dakota School of Medicine.*

1:45 **1521.** Acute toxic effects of cortisone on the heart. CAROLYN CANNON* AND WALTER M. BOOKER. *Howard Univ. Med. School.*

2:00 **1522.** Anti-uterotrophic effect of large oral doses of estrogens in the immature mouse. ERNEST J. UMBERGER,* GEORGE H. GASS* AND JACK M. CURTIS. *Food and Drug Admin.* (Biochem.)

2:15 **1523.** Effects of adrenalectomy on cobalt polycythemia in the rat. JAMES W. FISHER (intr. by W. F. CANTRELL). *Univ. of Louisville School of Medicine.*

2:30 **1524.** Effect of hypophysectomy on ploidy distribution in rat liver. ALLAN D. BASS AND CLARA E. DUNN.* *Vanderbilt Univ. School of Medicine.*

2:45 **1525.** Inhibition of glycogenic, myotrophic and androgenic activity of certain steroids by 2-amino-4-(p-chloroanilino)-s-triazine in the rat. HAROLD E. WILLIAMSON* AND F. E. SHIDEMAN. *Univ. of Wisconsin Med. School.*

3:00 **1526.** Effect of corticosteroids on catalase activity in liver homogenates. ROBERT C. TROOP (intr. by ROBERT A. WOODBURY). *Univ. of Tennessee.*

3:15 **1527.** Early response of uterine sodium and chloride to estrogen administration. SUMNER M. KALMAN. *Stanford Univ. School of Medicine.*

3:30 **1528.** Effect of cortisone on isolated perfused rabbit heart; relation of potassium. ADELEKE ADEYEMO,* GILBERT ALLEN* AND WALTER M. BOOKER. *Howard Univ. Med. School.*

3:45 **1529.** Antithyroid agents in experimental arteriosclerosis. A. P. ROSZKOWSKI* AND Y. T. OESTER. *Stritch School of Medicine.*

Renal

THURSDAY, 1:30 P.M.—CONRAD HILTON, WILLIFORD C

Chairman: Harry W. Hays

1:30 **1530.** Chlorothiazide (6-chloro-7-sulfamyl - 1,2,4- benzothiadiazine - 1,1-dioxide): the enhancement of sodium chloride excretion. KARL H. BEYER, JOHN E. BAER,* HORACE F. RUSSO* AND AUDREY S. HAIMBACH.* *Merck Inst. for Therapeutic Research.*

1:45 **1531.** Evaluation of chlorothiazide, a saluretic-diuretic agent, in the dog. HORACE F. RUSSO,* JOHN E. BAER,* RONALD M. NOLL* AND KARL H. BEYER. *Merck Inst. for Therapeutic Research.*

2:00 **1532.** Physiological disposition of chlorothiazide (6-chloro-7-sulfamyl-1,2,4-benzothiadiazine-1,1-dioxide), a saluretic-diuretic agent. JOHN E. BAER, LORRAINE LEIDY AND ANTONIA V. BROOKS (intr. by KARL H. BEYER). *Merck Inst. for Therapeutic Research.*

2:15 **1533.** Effects of dichlorphenamide on renal hemodynamics and electrolyte excretion. A. P. CROSLEY, JR. AND R. E. CULLEN (intr. by C. W. CRUMPTON). *Univ. of Wisconsin School of Medicine*).

2:30 **1534.** Renal tubular secretion of potassium and basic organic compounds. ALEXANDER KANDEL AND FLOYD R. DOMER.* *Tulane Univ. School of Medicine.*

2:45 **1535.** Effect of serotonin on water and electrolyte excretion. WILLIAM P. BLACKMORE (intr. by ANDRES GOTH). *Univ. of Texas, Southwestern Med. School.*

3:00 **1536.** Effect of reserpine (Serpasil) on urine flow and electrolyte excretion in "normal" subjects. EUGENE A. DE FELICE, JOHN FERRANTE AND FREDRIK BERGLUND (intr. by A. J. PLUMMER). *Boston Univ. School of Medicine.*

3:15 **1537.** Reserpine on renal hemodynamics in the trained unanesthetized dog. HENRY A. GOULD* AND THEODORE R. SHERROD. *Univ. of Illinois College of Medicine.*

3:30 **1538.** Effect of diuretics on rate of penetration of trichloracetic acid into rat kidney and liver tissue. E. J. CAFRUNY (intr. by M. H. SEEVERS). *Univ. of Michigan.*

3:45 **1539.** Inhibition of renal tubular excretion of N^1-methylnicotinamide by tetraalkylammonium derivatives in the chicken. R. E. GREEN AND LAWRENCE PETERS. *Kansas Univ. Med. School.*

4:00 **1540.** Absence of competition between PAH synthesis and tubular transport of PAH. B. J. MCINTOSH,* PETER K. KNOEFEL AND THOMAS G. SCHARFF.* *Univ. of Louisville School of Medicine.*

4:15 **1541.** Inhibition of renal tubular excretion of N^1-methylnicotinamide by other organic bases in the chicken. R. L. VOLLE,* R. E. GREEN AND LAWRENCE PETERS. *Kansas Univ. Med. School.*

Pharmacology Society Business Meeting

THURSDAY, 4:30 P.M.—CONRAD HILTON, WALDORF ROOM

Friday Morning, April 19, 9:00 a.m.

Cardiovascular IV

FRIDAY, 9:00 A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Durwood J. Smith

9:00 **1542.** Effect of norepinephrine on cardiac output and related hemodynamics. DAVID P. BAUMANN AND RUSSELL MOORES (intr. by L. D. SEAGER). *Univ. of Arkansas Med. Ctr.*

9:15 **1543.** Differentiation between effects of exogenous and endogenous catecholamines on myocardial electrolyte shifts. E. BAY AND I. BAY (intr. by S. KROP). *Tulane Univ. School of Medicine.*

9:30 **1544.** Effect of ionization upon cardiac stimulating properties of theophylline. JOANNE I. MOORE AND HAROLD F. HARDMAN (intr. by MAYNARD B. CHENOWETH). *Univ. of Michigan.*

9:45 **1545.** A separation of negative inotropic and negative chronotropic actions of procaine hydrochloride on basis of drug ionization. HAROLD F. HARDMAN, WALTER M. BAIRD AND JOANNE I. MOORE (intr. by MAURICE H. SEEVERS). *Univ. of Michigan.*

10:00 **1546.** Action of cigarette smoke on cardiovascular hemodynamics. GERALD A. KIEN,* NORMAN LASKER* AND THEODORE R. SHERROD. *Univ. of Illinois College of Medicine.*

10:15 **1547.** Nature of hypotension produced by esters of germine. W. FLACKE, J. M. BENFORADO, W. MOSIMANN AND C. R. SWAINE (intr. by OTTO KRAYER). *Harvard Med. School.*

10:30 **1548.** Effects of decreasing blood volume upon pressor and depressor responses. JAMES G. HILTON. *Univ. of Mississippi Med. Ctr.*

10:45 **1549.** Effects of 1 - (3,4 - dimethylphenyl)-1-dimethylamino-4-phenyl-butan-hydrochloride on cardiovascular hemodynamics. NORMAN LASKER,* GERALD A. KIEN* AND THEODORE R. SHERROD. *Univ. of Illinois College of Medicine.*

11:00 **1550.** Pharmacological properties of some new substituted pyridine and piperidine unsymmetrical bis-quaternary hypotensive agents. JOSEPH H. MIRSKY,* MARTHA D. NAPOLI* AND THOMAS B. O'DELL. *Irwin, Neisler Research Labs.*

11:15 **1551.** Histamine-like actions of oxypanamine, an alkaloid derived from Ormosia panamensis. NEIL C. MORAN, GERTRUDE P. QUINN* AND WILLIAM M. BUTLER, JR.* *Natl. Heart Inst. and Emory Univ.*

11:30 **1552.** Pharmacodynamic studies on mechanism of hypotensive action of substituted pyridine unsymmetrical bis-quaternary compounds. THOMAS B. O'DELL AND MARTHA D. NAPOLI.* *Irwin, Neisler Research Labs.*

11:45 **1553.** Effect of endotoxins on vascular reactivity. R. VARGAS AND L. BECK (intr. by M. H. SEEVERS). *Univ. of Michigan.*

Toxicology II

FRIDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD A

Chairman: O. Garth Fitzhugh

9:00 **1554.** Effect of concentration on oral toxicity of drugs. J. L. BOROWIT*, G. K. W. YIM,* T. S. MIYA AND C. J. CARR. *Purdue College of Pharmacy.*

9:15 **1555.** Alteration of toxicity of parathion by ultra-violet light. JANE R. BLAKE,* JOHN P. FRAWLEY, J. WILLIAM COOK* AND O. GARTH FITZHUGH. *Food and Drug Admin.*

9:30 **1556.** Method for microdetermination of allyl alcohol and estimation of circulating blood levels in the rat. J. K. KODAMA,* A. J. VALERGA* AND C. H. HINE. *Univ. of California School of Medicine.*

9:45 **1557.** Identification of barbiturates for forensic medical purposes by the use of x-ray diffraction. TED A. LOOMIS, JAMES E. FOX* AND CAROLYN S. SPAETH.* *Univ. of Washington.*

10:00 **1558.** Sodium diethyldithiocarbamate in the treatment of nickel poisoning. BOB WEST* AND F. WILLIAM SUNDERMAN. *Jefferson Med. College.* (Biochem.)

10:15 **1559.** Description of Se-75 disappearance from dog blood. KENNETH P. MCCONNELL AND DOROTHY M. ROTH.* *VA Hosp., Louisville, and Univ. of Louisville Med. School.* (Biochem.)

10:30 **1560.** Arsenic levels following prolonged oral administration of polybenzarsone [Bis-(2-hydroxy-5-arsonophenyl)-methane] to dogs. W. R. JONES,* J. W. NEWBERNE,* R. B. FORNEY, R. W. BEGLEY,* W. M. ALEXANDER,* L.

C. WEAVER AND B. E. ABREU. *Pitman-Moore Co. and Indiana Univ. Med. School.*

10:45 **1561.** Pharmacological and toxicological actions of magnesium arsenate phosphor. M. L. KEPLINGER* AND WILLIAM B. DEICHMANN. *Univ. of Miami Med. School.*

11:00 **1562.** Excretion of zinc-65 in the bile, pancreatic juice and intestinal juice of the rat. ROBERT J. MCISAAC (intr. by DOUGLAS S. RIGGS). *Univ. of Buffalo School of Medicine.*

11:15 **1563.** Clinical results with diphenylthiocarbazone treatment of thallium poisoning. W. B. STAVINOHA, JOE B. NASH, HELEN DAVIS AND A. E. HANSEN (intr. by G. A. EMERSON). *Univ. of Texas Med. Branch.*

Analgesics II

FRIDAY, 9:00 A.M.—CONRAD HILTON, WILLIFORD C

Chairman: John C. Krantz, Jr.

9:00 **1564.** Diethyl ether analgesia: diethyl ether concentration and spark ignition of inspired mixtures and level of diethyl ether in arterial blood. CARL M. EBERSOLE* AND JOSEPH F. ARTUSIO, JR. *New York Hosp. and Cornell Univ. Med. College.*

9:15 **1565.** Influence of certain non-narcotic analgesics on oxygen uptake of rat liver slices. TOM S. MIYA AND BOB WEST.* *Purdue Univ.*

9:30 **1566.** Pharmacological effects of certain thiazolones with special reference to their analgetic properties. J. A. SCHNEIDER, E. B. SIGG,* M. MCARTHUR* AND G. DE STEVENS.* *Ciba Pharmaceutical Products, Inc.*

9:45 **1567.** Placebo and non-reactors to analgesics. ROBERT C. BATTERMAN. *New York Med. College.*

10:00 **1568.** Analgesic effect and side effect liability of dihydrocodeine, codeine and morphine in man. HENRY K. BEECHER, JOACHIM S. GRAVENSTEIN,* DONALD P. PEDERSON* AND GENE M. SMITH.* *Harvard Med. School.*

10:15 **1569.** Analgetic effectiveness of SKF 5137 in man. B. CALESNICK. *Hahnemann Med. College.*

10:30 **1570.** Comparison of analgesic potency and side effects of anileridine and demerol in man. FRANCIS F. C. CHANG,* PETER SAFAR* AND LOUIS LASAGNA. *Johns Hopkins Med. School.*

10:45 **1571.** Analgesic power of dl-piperidyl methadone and morphine in man. JOACHIM S. GRAVENSTEIN,* DONALD P. PEDERSON* AND HENRY K. BEECHER. *Harvard Med. School.*

11:00 **1572.** Quantification of moderate degrees of drug-induced analgesia, by a modification of the Woolfe-MacDonald technique. JOE B. NASH, ROBERT G. BROWN, DELORES A. JAMISON AND MARJORIE E. NIELSEN (intr. by G. A. EMERSON). *Univ. of Texas Med. Branch.*

PAPERS READ BY TITLE

1573. Alteration of thiopental-S^{35} distribution and excretion by phenothiazine derivatives. L. B. ACHOR (intr. by E. M. K. GEILING). *Univ. of Chicago.*

1574. Suppressive amebacidal activity of 4′,5-dichlorosalicylanilide in macaques. HAMILTON H. ANDERSON AND ARSENY K. HRENOFF.* *Univ. of California.*

1575. Conjugation of exogenous glucuronic acid with morphine. EIKICHI HOSOYA AND SEIJI OTOBE (intr. by K. KAMIJO). *Keio Univ. Med. School, Tokyo.*

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY

Forty-second Annual Meeting

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Tuesday Morning, April 16, 9:00 a.m.

Tissue and Organ Transplantation: Blood

TUESDAY, 9:00 A.M.—BLACKSTONE, BALLROOM

Chairman: William H. Carnes

9:00 **1576.** Growth of embryonic gut on the exterior chest wall of cortisonized hosts. HELENE WALLACE TOOLAN. *Ft. Sam Houston and Sloan-Kettering Inst. for Cancer Research.*

9:15 **1577.** Incompatibility reactions in homologous grafts exposed in vitro to x-irradiation before implantation. RICHARD H. ANDRESEN,* CLARENCE W. MONROE,* DOROTHY A. MADDEN,* FAY H. SQUIRE* AND GEORGE M. HASS. *Presbyterian-St. Luke's Hosp., Chicago.*

9:30 **1578.** Transplantation of synovium to anterior chamber of eye of guinea pig. ROBERT B. STEBBINS AND RUSSELL S. JONES. *Univ. of Utah College of Medicine.*

9:45 **1579.** Establishment and operation of a human tissue bank employing beta-propiolactone as the sterilizing agent. GERALD A. LOGRIPPO. *Henry Ford Hosp.*

10:00 **1580.** Production of epithelial inclusion cysts by autogenous transplantation of pure epidermis in mice. CHARLES A. ASHLEY AND LORE ROBINSON.* *Mary Imogene Bassett Hosp.*

10:15 **1581.** Antibacterial activity of serum from patients showing hyper- and hypogamma globulinemia. DON C. WOOD (intr. by RUSSELL S. JONES). *Fort Douglas VA Hosp. and Univ. of Utah College of Medicine.*

10:30 **1582.** Hematologic effects of furadroxyl in dogs. ROBERT D. COYE (intr. by D. MURRAY ANGEVINE). *Univ. of Wisconsin Med. School.*

10:45 **1583.** Electron microscopy of ovalocytes. J. W. REBUCK, R. M. STURROCK* AND R. W. MONTO.* *Henry Ford Hosp.*

11:00 **1584.** Erythrocyte pyridine nucleotides. HARRY N. BARNET (intr. by HOWARD A. BALL). *San Diego Blood Bank.*

11:15 **1585.** Tissue hemolytic system of lipidic nature in man. ELECTRA XEFTERIS* AND MARIO STEFANINI. *St. Elizabeth's Hosp. and Tufts Univ. School of Medicine.*

11:30 **1586.** Relationship of humoral stimulation of erythropoiesis to iron absorption. S. KRANTZ,* L. O. JACOBSON AND E. GOLDWASSER. *Argonne Cancer Research Hosp. and Univ. of Chicago.*

Tuesday Afternoon, April 16, 1:30 p.m.

Inflammation, Tissue and Cell Injury and Response

TUESDAY, 1:30 P.M.—BLACKSTONE, BALLROOM

Chairman: Emory D. Warner

1:30 **1587.** Differential centrifugation and chemical mediators in inflammation. VALY MENKIN. *Temple Univ. School of Medicine.*

1:45 **1588.** Effects of flavonoids on inflammation. J. M. BEILER,* R. R. BRENDEL* AND G. J. MARTIN. *Natl. Drug Co.* (Biochem.)

2:00 **1589.** Chronic remittent dermal lesions in rabbits following a single injection of an extract of group A streptococci. WILLIAM J. CROMARTIE AND JOHN H. SCHWAB.* *Univ. of North Carolina.*

2:15 **1590.** "Burn toxin": absorption from burn site. SOL ROY ROSENTHAL AND HAROLD TRAHAN.* *Univ. of Illinois College of Medicine.*

2:30 **1591.** "Shock" from extracts of homologous or autologous lymphoid tissue. HERBERT C. STOERK AND TATIANJA BUDZILOVICH.* *Merck Inst. for Therapeutic Research.*

2:45 **1592.** Effects of fat emulsion upon tissue mast cells. HARRISON H. SHOULDERS, JR. AND H. C. MENG (intr. by JOHN L. SHAPIRO). *Vanderbilt Univ. Med. School.*

3:00 **1593.** Effect of pyrogen on embryonic degeneration in the rabbit. M. C. CHANG. *Worcester Fndn. for Exptl. Biology.* (Physiol.)

3:15 **1594.** Method of measurement of the dynamics of bone healing. J. H. HELLER, H. KÖNIG,* L. FOX* AND A. TOROK.* *New England Inst. for Med. Research.* (Physiol.)

3:30 **1595.** Modification of arthritis in the guinea pig by various corticosteroids and ACTH. RUSSELL S. JONES AND YOLANDE C. MAYNE.* *Univ. of Utah College of Medicine.*

3:45 **1596.** Circulatory dynamics of the canine spinal cord. G. MARGOLIS, A. T. GRIFFIN, P. D. KENAN, G. TINDALL, E. H. LAUGHLIN AND R. WOOD (intr. by E. S. ROGERS). *Duke Univ. School of Medicine and Hosp.*

4:00 **1597.** Use of vital staining in experimental cerebral edema. RAYMOND A. CLASEN,* PAULINE COOKE,* FELIX MARTIN,* ANTHONY RAIMONDI* AND GEORGE M. HASS. *Presbyterian-St. Luke's Hosp., Chicago.*

4:15 **1598.** Phytotoxins in the urines of certain diseases. DAVID I. MACHT. *Sinai Hosp., Inc., Baltimore.* (Physiol.)

Tumors, Carcinogenesis

TUESDAY, 1:30 P.M.—BLACKSTONE, HUBBARD ROOM

Chairman: Jacob Furth

1:30 **1599.** Normal human tissues in sponge-matrix tissue culture: their growth patterns and interactions with cancer cells. JOSEPH LEIGHTON. *Univ. of Pittsburgh School of Medicine.*

1:45 **1600.** Local lymphoid hyperplasia in the skin of the turkey produced by methylcholanthrene. R. H. RIGDON. *Univ. of Texas Med. Branch.*

2:00 **1601.** Lack of influence of age of mice upon the initiation of pulmonary tumors with urethane. STANFIELD ROGERS. *Duke Univ.*

2:15 **1602.** Comparative effects of colchicine, nitrogen mustard and urethane on tumor cells and bacteria. NATHAN B. FRIEDMAN, ROBERT E. HOYT* AND EILEEN DRUTZ.* *Cedars of Lebanon Hosp. and Univ. of Southern California.*

2:30 **1603.** Injection site fibrosarcoma production in rats by food colors. ARTHUR A. NELSON AND BERNARD DAVIDOW.* *Food and Drug Admin.*

2:45 **1604.** Transplantable fibrosarcomas of the parakeet. HANS G. SCHLUMBERGER. *College of Medicine, Ohio State Univ.*

3:00 **1605.** Effects of pituitary, gonads and adrenals on growth and function of autonomous mammotropic tumor cells in rats. KELLY H. CLIFTON* AND JACOB FURTH. *Children's Cancer Research Fndn., Children's Med. Ctr. and Harvard Med. School.*

3:15 **1606.** Transplantation of mouse leukemias and lymphomas into golden hamsters. ALFRED H. HANDLER AND RICHARD A. ADAMS (intr. by SIDNEY FARBER). *Children's Cancer Research Fndn. and Harvard Med. School.*

3:30 **1607.** Pathogenesis of transferred chloroleukemia in the albino rat. CHARLES HAR-

RIS, WILLIAM T. BURKE,* MARGOT GRUENSTEIN* AND HARRY SHAY. *Temple Univ. Med. School.*

3:45 **1608.** Paper chromatographic patterns of human vaginal fluid. WILLIAM M. BERTON (intr. by D. H. SPRUNT). *Univ. of Tennessee.*

Pathology Society Business Meeting

TUESDAY, 4:30 P.M.—BLACKSTONE, BALLROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Program on page 446

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lower Lobby of the Conrad Hilton to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton
Exhibit Manager's Office, Exhibition Hall, Conrad Hilton

Wednesday Morning, April 17, 9:00 a.m.

Cardiovascular System, Hypertension

WEDNESDAY, 9:00 A.M.—BLACKSTONE, BALLROOM

Chairman: J. F. A. McManus

9:00 **1609.** Pathology of experimental mitral stenosis. WILLIAM E. JAQUES AND ALBERT L. HYMAN.* *Louisiana State Univ. School of Medicine.*

9:15 **1610.** Relationship of the Aschoff body to experimental myocarditis. BERNARD M. WAGNER. *Children's Hosp., Philadelphia.*

9:30 **1611.** Pathogenesis of cardiovascular necrosis induced by nephrectomy. DAVID LEHR, ISABEL WAJDA* AND MARILYN KRUKOWSKI.* *New York Med. College, Flower and Fifth Ave. Hosps.* (Pharmacol.)

9:45 **1612.** Role of the thymus gland in the pathogenesis of renogenic arteriosclerosis. CONSTANCE R. MARTIN* AND DAVID LEHR. *New York Med. College, Flower and Fifth Ave. Hosps.* (Pharmacol.)

10:00 **1613.** Prevention and reversal of coronary lipid deposition in rats given antikidney serum, desoxycorticosterone and sodium chloride. RICHARD MOY,* MARJORIE A. SCHROEDER,* AUDREY A. MOSKOWITZ* AND ROBERT W. WISSLER. *Univ. of Chicago.*

10:15 **1614.** Vascular disease produced by combinations of hypercholesterolemia and hypervitaminosis D. RICHARD E. TRUEHEART,* MARJORIE STUMPE* AND GEORGE M. HASS. *Presbyterian-St. Luke's Hosp., Chicago.*

10:30 **1615.** Sex difference in aortic rupture induced by lathyrus odoratus in immature rats. ISABEL WAJDA,* DAVID LEHR AND MARILYN KURKOWSKI.* *New York Med. College, Flower and Fifth Ave. Hosps.* (Pharmacol.)

10:45 **1616.** Toxicity of β-aminopropionitrile for turkey poults. J. J. LALICH, B. D. BARNETT* AND H. R. BIRD. *Univ. of Wisconsin.*

11:00 **1617.** Relationship of anemia to cardiac hypertrophy. TOM D. NORMAN AND ROBERT D. MCBROOM (intr. by DOUGLAS H. SPRUNT). *Univ. of Mississippi Med. Ctr.*

11:15 **1618.** Hypertrophy of the heart in guinea pigs living at simulated high altitude. ENRIQUE VALDIVIA (intr. by D. MURRAY ANGEVINE). *Univ. of Wisconsin Med. School.*

11:30 **1619.** Influence of adrenal re-enucleation and adrenalectomy on adrenal-regeneration hypertension. FLOYD R. SKELTON. *Med. College of Georgia.*

11:45 **1620.** Right-sided thrombotic lesions produced in the normal dog heart by peripheral venous emboli. STANFORD WESSLER,* DAVID G. FREIMAN AND JAY H. KATZ.* *Harvard Med. School and Beth Israel Hosp.*

Viruses: Endocrine

WEDNESDAY, 9:00 A.M.—BLACKSTONE, HUBBARD ROOM

Chairman: Charles C. Randall

9:00 **1621.** Growth of West Nile virus in tissue cultures. FRANCIS B. GORDON AND WIRTH I. CAPPS.* *Naval Med. Research Inst.*

9:15 **1622.** Use of organ cultures in the study of infection. FREDERIK B. BANG AND JANET NIVEN.* *Johns Hopkins Univ. and Natl. Inst. for Med. Research, London, England.*

9:30 **1623.** Variation in tissue culture technique with adaptation of vaccinia virus to Earle's L cells following a prolonged noninfectious period. CHARLES C. RANDALL. *Vanderbilt Univ. School of Medicine.*

9:45 **1624.** Free amino acids in the lungs of normal and influenza virus infected mice. DONALD F. SUMMERS AND C. A. JOHNSON (intr. by OLAF BERGEIM). *Univ. of Illinois College of Medicine.* (Biochem.)

10:00 **1625.** Immunological relationship between measles and distemper viruses. DAVID T. IMAGAWA* AND JOHN M. ADAMS. *School of Medicine, Univ. of California and Long Beach VA Hosp.*

10:15 **1626.** Results of influenza virus infection on the outcome of pregnancy in mice. R. A. SIEM,* D. T. IMAGAWA,* M. H. JONES,* D. L. CHADWICK* AND J. M. ADAMS. *School of Medicine, Univ. of California and Long Beach VA Hosp.*

10:30 **1627.** Demonstration of an alpha cell maintenance factor for rat anterior pituitary in vitro. IRVING S. JOHNSON AND R. BARBARA MATTAS (intr. by PAUL N. HARRIS). *Lilly Research Labs.*

10:45 **1628.** Pathology of radioisotopic ablation of the thyroid in the dog. STUART W. LIPPINCOTT, G. LEWALLEN* AND G. SHELLABARGER.* *Brookhaven Natl. Lab.*

11:00 **1629.** Isolation and chemical properties of follicle stimulating hormone. SANFORD L. STEELMAN* AND ALBERT SEGALOFF. *Baylor Univ. College of Medicine, Univ. of Texas and Alton Ochsner Med. Fndn.*

Wednesday Afternoon, April 17, 1:30 p.m.

Nephrotoxic Nephritis: Antigens and Antibodies

WEDNESDAY, 1:30 P.M.—BLACKSTONE, BALLROOM

Chairman: Israel Davidsohn

1:30 **1630.** Immunology and clinical course of experimental nephritis with and without cortisone. KURT LANGE,* LAWRENCE SLOBODY,* EUGENE J. WENK* AND MAX WACHSTEIN. *New York Med. College.*

1:45 **1631.** Morphology and histochemistry of experimental nephritis in the rabbit with and without cortisone. MAX WACHSTEIN AND KURT LANGE.* *St. Catherine's Hosp., Brooklyn, and New York Med. College.*

2:00 **1632.** Alteration of renal succinic dehydrogenase in nephrotoxic serum nephrosis. EDWIN R. FISHER AND JOHN GRUHN.* *Univ. of Pittsburgh.*

2:15 **1633.** Influence of streptococcus toxin on the course of canine experimental nephrosis. KHALIL G. WAKIM AND BERNARD F. MCKENZIE.* *Mayo Fndn. and Clinic.* (Physiol.)

2:30 **1634.** Cellular basis of antibody formation: development during neonatal period. ROBERT A. BRIDGES,* RICHARD M. CONDIE,* SOLOMON J. ZAK* AND ROBERT A. GOOD. *Univ. of Minnesota.*

2:45 **1635.** Histogenesis of antibody producing intraocular transplants of thymus in mice. WILLIAM L. WILLIAMS, RICHARD D. STONER* AND WILLIAM M. HALE. *Univ. of Tennessee and Brookhaven Natl. Lab.*

3:00 **1636.** Effect of desensitization on experimental cavity formation by tuberculous antigen-antibody-reaction. Y. OGAWA, Y. YAMAMURA, M. YAMAGUCHI AND K. TAKA (intr. by P. STEINER). *Toneyama Research Inst., Natl. Sanatorium, Japan, and City of Hope Med. Research Inst.*

3:15 **1637.** Serologic study of anti-leukocyte antibodies in man and immunized rabbits. ROY L. WALFORD. *Univ. of California School of Medicine.*

3:30 **1638.** Immunochemical study of lesions in experimental serum sickness. JACINTO J. VAZQUEZ,* CHARLES G. COCHRANE* AND FRANK J. DIXON. *Univ. of Pittsburgh School of Medicine.*

3:45 **1639.** Toxicity of antirabbit red cell hemolytic serums produced in guinea pigs for the skin of rabbits. ISRAEL DAVIDSOHN, RAYMOND MURATORE,* ELEANOR G. HANAWALT* AND ISRAEL S. GOLDMAN.* *Chicago Med. School and Mt. Sinai Med. Research Fndn.*

Vitamins and Enzymes

WEDNESDAY, 1:30 P.M.—BLACKSTONE, HUBBARD ROOM

Chairman: Richard H. Follis, Jr.

1:30 **1640.** Locus of absorption of vitamin B_{12}. YALE CITRIN,* CARLO DEROSA* AND JAMES A. HALSTED. *VA Hosp., Syracuse and State Univ. of New York College of Medicine.*

1:45 **1641.** Pathologic study of embryos from vitamin E-deficient turkey hens. T. M. FERGUSON,* J. R. COUCH AND R. H. RIGDON. *Texas A. and M. College System and Univ. of Texas Med. Branch.*

2:00 **1642.** Neurological and cytological changes after bis-beta-aminopropionitrile injection. H. A. HARTMANN AND H. F. STICH (intr. by J. J. LATICH). *Univ. of Wisconsin Med. School.*

2:15 **1643.** Effect of spinal-cord transection upon the skeletal changes induced by aminoacetonitrile (AAN). HANS SELYE AND R. K. MISHRA.* *Univ. of Montreal.* (Physiol.)

2:30 **1644.** Effects of maize diets on rats and monkeys. RICHARD H. FOLLIS, JR., *Armed Forces Inst. of Pathology.*

2:45 **1645.** Relative antagonism of PABA, folic and folinic acids to effects of sulfadiazine and pyrimethamine on Toxoplasma, mouse and man. J. K. FRENKEL AND G. H. HITCHINGS. *Univ. of Kansas School of Medicine, and Wellcome Research Labs.*

3:00 **1646.** Standardization of ATPase activity in isolated cardiac myofibrils. ARNOLD BROWN,* ALBERT ARAS* AND GEORGE M. HASS. *Presbyterian-St. Luke's Hosp., Chicago.*

3:15 **1647.** Enzymatic changes in acute myocardial ischemic injury. GEORGE W. SMETTERS,* JOHN P. KALTENBACH* AND ROBERT B. JENNINGS. *Northwestern Univ. Med. School.*

3:30 **1648.** Serum glutamic-oxalacetic transaminase following local injury. HARRY G. ALBAUM. *Brooklyn College.* (Biochem.)

3:45 **1649.** 5-Hydroxytryptamine formation from 5-hydroxytryptophan by mast cells. DAVID LAGUNOFF,* KAI BOR LAM,* ELIZABETH ROEPER* AND EARL P. BENDITT. *Univ. of Chicago Clinics.*

4:00 **1650.** Presence of hydrogen peroxide in uterine tissue of the rat. JOHN B. HENRY* AND FRED V. LUCAS. *Columbia Univ. and Presbyterian Hosp.*

4:15 **1651.** Use of nitroneotetrazolium in enhancing the permanence and effecting finer histochemical localization of succinic dehydrogenase. BJARNE PEARSON. *Detroit Inst. of Cancer Research and Wayne State Univ.*

Pathology Society Dinner

Presentation of First Annual Parke Davis Award in Experimental Biology

WEDNESDAY, 6:30 P.M.—SHERATON-BLACKSTONE

Exhibits

CONRAD HILTON, EXHIBITION HALL

Monday–Thursday, April 15–18, 8:45 A.M.–6:00 P.M.

Friday, April 19, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 569.

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 505, Conrad Hilton, where owners may claim them on proper identification.

Thursday Morning, April 18, 9:00 a.m.

Liver and Biliary System: Cirrhosis

THURSDAY, 9:00 A.M.—BLACKSTONE, BALLROOM

Chairman: Frank W. Hartman

9:00 **1652.** Chemical analyses of human bile. JAMES L. GILLELAND* AND BELA HALPERT. *VA Hosp. Houston, and Baylor Univ. College of Medicine.*

9:15 **1653.** Effect of dehydrocholic acid on experimental cholelithiasis in the rabbit. M. BEVANS, R. KAPLAN* AND E. H. MOSBACH.* *Goldwater Mem. Hosp., and Columbia Univ.*

9:30 **1654.** Dietary fat and the pattern of hepatic liposis in choline-deficient mice. W. LANE WILLIAMS, JOHN B. CARDLE* AND ROLAND D. MEADER.* *Univ. of Minnesota.*

9:45 **1655.** Periaortal fatty cysts and reticulin condensation in livers of rats subjected to cyclic protein-feeding. W. STANLEY HARTROFT. *Washington Univ. School of Medicine.*

10:00 **1656.** Liver regeneration in experimental cirrhosis. F. W. HOFFBAUER, CYRUS P. BARNUM* AND F. G. ZAKI.* *Univ. of Minnesota Med. School.*

10:15 **1657.** Fatty infiltration due to rare earths. G. C. KYKER, E. A. CRESS,* V. M. SIVARAMAKRISHNAN,* C. H. STEFFEE AND M. STEWART.* *Oak Ridge Inst. of Nuclear Studies.* (Biochem.)

10:30 **1658.** Hepatic interstitial cell reaction in experimental liver damage. HANS POPPER, ROBERT STEIN,* GEOFFREY KENT* AND CLARA BRUCE.* *Cook County Hosp., Chicago.*

10:45 **1659.** Injury of the mouse liver, protected from CCl_4 injury by sulfaguanidine after Nembutal treatment. J. WALTER WILSON AND ELIZABETH H. LEDUC.* *Brown Univ.*

11:00 **1660.** Splenic changes in experimental cirrhosis. GEOFFREY KENT,* CLARA BRUCE,* ALVIN DUBIN,* JESUS DE LA HUERGA AND HANS POPPER. *Cook County Hosp., Chicago.*

11:15 **1661.** Coma of Eck's fistula animals associated with increased free amino acids of the brain and spinal fluid. J. L. BOLLMAN, E. V. FLOCK,* J. H. GRINDLAY,* AND F. R. LICHTENHELD.* *Mayo Clinic.*

Special Presentation

ANNUAL PARKE DAVIS AWARD IN EXPERIMENTAL PATHOLOGY

Chairman: Frank W. Hartman

11:30 Title and author to be announced at annual A.S.E.P. Dinner.

Press Room

Room 500, Fifth Floor, Conrad Hilton

Thursday Afternoon, April 18, 1:30 p.m.

Protein Metabolism, Nucleic Acids

THURSDAY, 1:30 P.M.—BLACKSTONE, BALLROOM

Chairman: Paul R. Cannon

1:30 **1662.** Nucleic acids and proteins in the development of muscles. AMARA KITIYAKARA (intr. by D. M. ANGEVINE). *Univ. of Wisconsin.*

1:45 **1663.** Synthesis of DNA in relation to nuclear division in a plasmodial slime mold. ODDVAR NYGAARD,* SOPHIA GUTTES* AND H. P. RUSCH. *Univ. of Wisconsin Med. School.*

2:00 **1664.** Fate of the cell particulates in regenerating rat liver as measured by reference enzyme activity. J. L. VAN LANCKER AND D. SEMPOUX (intr. by WILLIAM H. CARNES). *Univ. of Utah and Univ. of Louvain, Belgium.*

2:15 **1665.** Protein synthesis and nucleic acid alterations in livers of fasted and turpentine-injured rats. L. J. ZELDIS, J. K. EKEGREN,* J. H. BLOCH* AND S. C. MADDEN. *Univ. of California School of Medicine.*

2:30 **1666.** Effect of localized inflammation on the absorption of protein. WILLIAM D. WOODS, WILLIAM MAYER AND CHARLES L. YUILE (intr. by J. LOWELL ORBISON). *Univ. of Rochester School of Medicine and Dentistry.*

2:45 **1667.** Serum protein fractions and glycoproteins in patients with infectious disease. H. L. DOBSON, R. G. GRAHAM AND E. M. YOW (intr. by JAMES A. GREENE). *Baylor Univ. College of Medicine and Jefferson Davis Hosp., Houston.* (Physiol.)

3:00 **1668.** Electrophoretic studies on serum proteins of mice, guinea pigs and rabbits with autologous or homologous skin grafts. ALVAR A. WERDER, CREIGHTON A. HARDIN* AND PERRY MORGAN.* *Univ. of Kansas School of Medicine.*

3:15 **1669.** Chemical pathology of acute amino acid deficiencies. HERSCHEL SIDRANSKY* AND EMMANUEL FARBER. *Tulane Univ. School of Medicine.*

3:30 **1670.** Changes in tissue proteins in the course of cellular death. GUIDO MAJNO, THOMAS E. THOMPSON* AND SUSI BOCHET-SCHÜPBACH.* *Harvard Med. School.*

3:45 **1671.** Urea and creatinine production in adequately hydrated subtotally nephrectomized rats. ASHTON MORRISON AND JULIUS GORDON (intr. by S. ROGERS). *Duke Univ. School of Medicine.*

4:00 **1672.** Correlation of chemical and pathological changes in experimental amyloidosis. E. CALKINS, R. G. GILES AND A. S. COHEN (intr. by B. CASTLEMAN). *Harvard Med. School and Massachusetts General Hosp.*

4:15 **1673.** Cortisone and dietary hepatic necrosis. K. ATERMAN (intr. by ISADORE GERSCH). *Dept. of Anatomy, Birmingham, England.*

AMERICAN INSTITUTE OF NUTRITION

Twenty-first Annual Meeting

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 15, 1:30 p.m.

Proteins

MONDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 14

Chairman: W. H. Sebrell, Jr.

1:30 **1674.** Protein nutrition in the cat. J. B. ALLISON AND S. A. MILLER*. *Rutgers Univ.*

1:45 **1675.** Protein requirements of chinook salmon at two water temperatures. DONALD C. DELONG,* JOHN E. HALVER* AND EDWIN T. MERTZ. *U. S. Fish and Wildlife Service and Purdue Univ.*

2:00 **1676.** A new method of fractionating corn proteins and its use in the assay of different corn varieties. NORMAN E. LLOYD,* RICARDO BRESSANI* AND EDWIN T. MERTZ. *Purdue Univ.*

2:15 **1677.** Influence of dietary proteins during pregnancy on rat liver composition. CHARLOTTE RODERUCK AND JANICE GODWIN.* *Iowa Agricultural Exp. Station.*

2:30 **1678.** Influence of source and level of dietary nitrogen on nitrogen balance and carcass composition in the adult rat. JACQUELINE L. DUPONT,* MARY W. MARSHALL* AND MADELYN WOMACK. *U. S. Dept. of Agriculture.*

2:45 **1679.** Energy value of diet and nitrogen retention. S. P. YANG* AND PEARL SWANSON. *Iowa Agricultural Exp. Station.*

3:00 **1680.** Mechanism of testosterone-induced N-retention in rats. ERNEST GEIGER AND M. E. NIMNI.* *Univ. of Southern California School of Medicine.*

3:15 **1681.** Effect of type of carbohydrate on protein utilization. A. E. HARPER AND H. E. SPIVEY.* *Univ. of Wisconsin.*

3:30 **1682.** Effect of lime-treatment on some characteristics of corn proteins. RICARDO BRESSANI (intr. by ROBERT L. SQUIBB). *Inst. of Nutrition of Central America and Panama, Guatemala.*

3:45 **1683.** Influence of additions of small amounts of defatted fish flour to the proteins in millet and grain sorghum on growth and protein efficiency. BARNETT SURE. *Univ. of Arkansas.*

4:00 **1684.** Utilization of simple nitrogenous compounds by the growing infant. SELMA E. SNYDERMAN, L. EMMETT HOLT, JR., JOSEPH DANCIS,* M. EARL BALIS AND AUDREY BOYER.* *New York Univ. College of Medicine and Sloan-Kettering Inst. Div. of Cornell Univ. Med. College.* (Biochem.)

4:15 **1685.** Value of gelatin as a nutritional supplement. MYRON BRIN, BERNARD L. OSER AND MONA OSER.* *Food Research Labs., Inc.* (Biochem.)

Nutrition, General

MONDAY, 1:30 P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: R. R. Williams

1:30 **1686.** Effects of growth promotants on growth and intestinal weight of rats. HENRY S. PERDUE,* HENRY C. SPRUTH* AND DOUGLAS V. FROST. *Abbott Labs.*

1:45 **1687.** Effect of some glutamine antagonists on alcohol consumption by rats. LORENE L. ROGERS AND RICHARD B. PELTON (intr. by ROGER J. WILLIAMS). *Univ. of Texas.* (Biochem.)

2:00 **1688.** Antimetabolites and production of mental abnormalities. CHARLES E. FROHMAN, JACOB L. CHASON,* JOAN HAVELENA* AND JACQUES GOTTLIEB.* *Lafayette Clinic and Wayne State Univ.* (Biochem.)

2:15 **1689.** Certain anticariogenic factors in oat hulls. FUMITO TAKETA* AND PAUL H. PHILLIPS. *Univ. of Wisconsin.*

2:30 **1690.** Purified diets for ruminants. GENNARD MATRONE,* H. A. RAMSEY* AND G. H. WISE. *North Carolina State College.*

2:45 **1691.** Alterations in intermediary metabolism in pregnancy. GEORGE H. BEATON AND DORIS M. CUERY (intr. by E. W. McHENRY). *Univ. of Toronto.*

3:00 **1692.** Toxicity of organic arsenicals when fed to chicks. F. D. WHARTON, JR.,* R. B. SCHOENE,* M. J. SMIDT* AND J. C. FRITZ. *Dawe's Labs., Inc.*

3:15 **1693.** A biological estimation of metabolizable energy. BERNARD L. OSER AND MONA OSER.* *Food Research Labs., Inc.*

3:30 **1694.** A comparative nutrition study. THOMAS D. LUCKEY. *Univ. of Missouri School of Medicine.*

3:45 **1695.** Nutritional significance of coprophagy. RICHARD H. BARNES, GRACE F. FIALA,* BETTE J. McGEHEE* AND ANN M. BROWN.* *Cornell Univ.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Exhibits

CONRAD HILTON, EXHIBITION HALL

Monday–Thursday, April 15–18, 8:45 A.M.–6:00 P.M.

Friday, April 19, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 569.

Tuesday Morning, April 16, 9:00 a.m.

Human Nutrition

TUESDAY, 9:00 A.M.—PALMER HOUSE, DINING ROOM 14

Chairman: Ruth M. Leverton

9:00 **1696.** Diphosphopyridine nucleotide content of whole blood and blood fractions of women on a controlled diet. NINA H. MORLEY* AND CLARA A. STORVICK. *Agricultural Exp. Station, Oregon State College.*

9:15 **1697.** Obesity in a long-term program. RUTH G. MACINTOSH,* DOROTHY DALEY,* D. N. R. JACKSON* AND BARBARA A. MCLAREN. *Univ. of Toronto and Women's College Hosp.*

9:30 **1698.** Energy requirements of men in sub-arctic bivouac. B. E. WELCH, L. M. LEVY, C. FRANK CONSOLAZIO, E. R. BUSKIRK AND T. DEE (intr. by THEODORE E. FRIEDEMANN). *U. S. Army Med. Nutrition Lab. and QM Research and Development Command.*

9:45 **1699.** Changes with age in the basal metabolic rate of adult women. RUTH LEVERTON, ALICE BIESTER,* ISABEL PESEK,* LIDA BURRILL,* MARGARET MANGEL* AND DENA CEDERQUIST. *Univ. of Nebraska, Univ. of Minnesota, Iowa State College, South Dakota State College, Univ. of Missouri and Michigan State Univ.*

10:00 **1700.** Physical measurements and blood findings of 185 girls observed for 2½ years. PILAR GARCIA,* CHARLOTTE RODERUCK AND ERCEL EPPRIGHT. *Iowa Agricultural Exp. Station.*

10:15 **1701.** Early biochemical changes with treatment in kwashiorkor. GUILLERMO ARROYAVE,* FERNANDO VITERI,* MOISES BÉHAR* AND NEVIN S. SCRIMSHAW. *Inst. of Nutrition of Central America and Panama, Guatemala.*

10:30 **1702.** Diet and fecal fat excretion in tropical sprue. CONRADO F. ASENJO, R. RODRIGUEZ MOLINA* AND MARTA CANCIO.* *School of Medicine, Univ. of Puerto Rico and San Patricio VA Hosp., San Juan.*

10:45 **1703.** Manifestations of fat deficiency in infants. ARILD E. HANSEN, DORIS J. D. ADAM,* ARR NELL BOELSCHE,* MARY ELLEN HAGGARD,* HILDA F. WIESE, EDWARD L. PRATT* AND VIRGINIA HUNTER.* *Univ. of Texas School of Medicine and Southwestern Med. School.*

11:00 **1704.** Human requirement for iodine. ISIDOR GREENWALD. *New York Univ. College of Medicine.*

11:15 **1705.** Relationships of clay and cornstarch ingestion to biochemical findings in pregnant and non-pregnant women. CECILE HOOVER EDWARDS, ALTA MAE KEMP AND DORIS LAING (intr. by PEARL P. SWANSON). *Carver Fndn., Tuskegee Inst.*

11:30 **1706.** A new food concentrate as adjuvant therapy in disease. OSCAR F. DAVIS, ALBERT LEVINE,* CHARLES MEYER,* IRVING FORMAN* AND MORRIS FINKEL.* *Loyola Med. School, Chicago Med. School, Columbus Hosp., Mt. Sinai Hosp. and Alexian Brothers Hosp.* (Pharmacol.)

Ascorbic Acid, Folic Acid, Vitamin B_{12} and Unidentified Factors

TUESDAY, 9:00 A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: B. S. Schweigert

9:00 **1707.** Enzymatic conversion of D-glucuronate to L-ascorbate in animal tissues. C. BUBLITZ,* A. P. GROLLMAN* AND A. L. LEHNINGER. *Johns Hopkins Univ.*

9:15 **1708.** Utilization of ketone bodies in ascorbic acid deficiency. HABEEB BACCHUS, ALBERT F. DEBONS* AND WILLIAM KISHI.* *George Washington Univ. School of Medicine.* (Physiol.)

9:30 **1709.** Dietary intake and tissue levels of ascorbic acid, folic acid and citrovorum factor in the monkey. KRISHNA P. MISRA,* CALVIN W. WOODRUFF AND WILLIAM J. DARBY. *Vanderbilt Univ. School of Medicine.*

9:45 **1710.** Effect of antibiotics on folic acid deficient chicks. J. E. BRAHAM,* H. R. BIRD AND C. A. BAUMANN. *Univ. of Wisconsin.*

10:00 **1711.** Folic acid in the axenic cultivation of the nematode Caenorhabditis briggsae. EDER LINDSAY HANSEN AND ELLSWORTH C. DOUGHERTY.* *Kaiser Fndn. Hosp. and Univ. of California School of Medicine.* (Pharmacol.)

10:15 **1712.** Role of vitamin B_{12} in nucleic

acid synthesis. S. R. WAGLE* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

10:30 **1713.** Effect of intrinsic factor on uptake of radioactive vitamin B_{12} by slices of rat liver. O. NEAL MILLER, J. L. RANEY* AND FRED M. HUNTER.* *Tulane Univ. School of Medicine.*

10:45 **1714.** A modified procedure for estimation of vitamin B_{12} in low potency materials. J. M. MCLAUGHLAN, C. G. ROGERS AND E. J. MIDDLETON (intr. by J. A. CAMPBELL). *Dept. of Natl. Health and Welfare, Ottawa.*

11:00 **1715.** Distribution, concentration and properties of the salmonellosis resistance factor (SRF). HENRY N. WOOD* AND HOWARD A. SCHNEIDER. *Rockefeller Inst. for Med. Research.*

11:15 **1716.** Unidentified growth factor in egg yolk. HENRY MENGE,* ROBERT J. LILLIE AND C. A. DENTON. *U. S. Dept. of Agriculture.*

11:30 **1717.** Growth factor in meat meal. C. J. ACKERMAN* AND R. W. ENGEL. *Virginia Polytechnic Inst.*

11:45 **1718.** Ethanol fractionation of chick embryo growth factor. MORRIS ROSENFELD. *Johns Hopkins Univ.* (Pharmacol.)

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton

Exhibit Manager's Office, Exhibition Hall, Conrad Hilton

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lower Lobby of the Conrad Hilton to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Tuesday Afternoon, April 16, 1:30 p.m.

Fats

TUESDAY, 1:30 P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: F. H. Mattson

1:30 **1719.** Nutritive value of rapeseed oil. J. C. ALEXANDER* AND F. H. MATTSON. *Procter and Gamble Co.*

1:45 **1720.** Factors influencing the absorbability of saturated fats. DAVID C. HERTING,* STANLEY R. AMES AND PHILIP L. HARRIS. *Distillation Products Industries Div. of Eastman Kodak Co.*

2:00 **1721.** Detection of changes in the nutritive value of frying fats. C. E. Poling,* W. D. WARNER* AND E. E. RICE. *Swift and Co.*

2:15 **1722.** Effect of commercial frying operations on nutritive value of fats. E. E. Rice, P. E. MONE* AND C. E. POLING.* *Swift and Co.*

2:30 **1723.** Survival and body composition of hypothalamic obese rats in starvation. D. G. MONTEMURRO* AND J. A. F. STEVENSON. *Univ. of Western Ontario.* (Physiol.)

2:45 **1724.** Energy expenditure of hereditary obese-hyperglycemic mice and lean siblings. RUTH MCCLINTOCK (intr. by NATHAN LIFSON). *Univ. of Minnesota.* (Physiol.)

3:00 **1725.** Dietary fats and time in the production of experimental obesity. JOSEPH J. BARBORIAK (intr. by W. A. KREHL). *Yale Univ.*

3:15 **1726.** Intestinal absorption of free fatty acids. H. C. TIDWELL. *Univ. of Texas, Southwestern Med. School.*

3:30 **1727.** Composition of dietary fat in relation to serum and liver cholesterol. RUTH OKEY, MARIAN M. LYMAN* AND BETTY MCKEE EINSET.* *Univ. of California.*

3:45 **1728.** Plasma cholesterol depressant factor in corn oil. J. M. R. BEVERIDGE, W. F. CONNELL AND G. A. MAYER (intr. by G. H. ETTINGER). *Queen's Univ., Canada.* (Physiol.)

4:00 **1729.** Effect on serum lipids of 1300 calories of daily walking. HENRY LONGSTREET TAYLOR, JOSEPH T. ANDERSON* AND ANCEL KEYS. *Univ. of Minnesota.* (Physiol.)

Amino Acids I

TUESDAY, 1:30 P.M.—PALMER HOUSE, DINING ROOM 17

Chairman: A. E. Harper

1:30 **1730.** Quantitative utilization of tryptophan from foods by the rat. C. H. LUSHBOUGH (intr. by B. S. SCHWEIGERT). *American Meat Inst. Fndn. and Univ. of Chicago.*

1:45 **1731.** Rat growth experiments with 5-hydroxy-DL-tryptophan. ALLAN J. MORRIS AND MARVIN D. ARMSTRONG (intr. by L. T. SAMUELS). *Univ. of Utah.*

2:00 **1732.** Some aspects of tryptophan metabolism on a low niacin intake. VIRGINIA M. VIVIAN,* MARILYN M. CHALOUPKA* AND MAY S. REYNOLDS. *Univ. of Wisconsin.*

2:15 **1733.** Urinary excretion of 8-hydroxyquinaldic acid after ingestion of xanthurenic acid. HITHOSHI TAKAHASHI* AND J. M. PRICE. *Univ. of Wisconsin Med. School.* (Biochem.)

2:30 **1734.** Reduction of postoperative nitrogen deficits by intravenous feeding with hexose, fat and protein hydrolysates. STANLEY LEVEY, WILLIAM E. ABBOTT* AND HARVEY KRIEGER.* *Western Reserve Univ. School of Medicine and Univ. Hosps. of Cleveland.* (Biochem.)

2:45 **1735.** Valine and histidine requirement of the normal infant. SELMA E. SNYDERMAN, L. EMMETT HOLT, JR., PATRICIA M. NORTON,* FLORENCE SMELLIE* AND AUDREY BOYER.* *New York Univ. College of Medicine.*

3:00 **1736.** Excretion of five essential amino acids by young women. F. WADDILL,* R. M. LEVERTON AND M. SKELLENGER.* *Nebraska Agricultural Exp. Station.*

3:15 **1737.** Availability of valine for human subjects. HELLEN LINKSWILER, HAZEL METZ FOX AND DONNA GESCHWENDER (intr. by MAY S. REYNOLDS). *Univ. of Nebraska.*

3:30 **1738.** Observations in the young adult on the relation of isoleucine requirements to the dietary nitrogen level. MARIAN E. SWENDSEID, NANCY A. FISCHER,* RUTH M. JACKSON* AND STEWART G. TUTTLE.* *Univ. of California and the VA Ctr.* (Biochem.)

3:45 **1739.** Availability of energy and essen-

tial amino acids in egg, pork and peanut butter. JOHNNIE H. WATTS, LOVIE K. BOOKER, JANET V. WILSON, E. GERALDINE WILLIAMS AND WALTER G. WRIGHT (intr. by HELEN G. OLDHAM). *Carver Fndn., Tuskegee Inst.*

4:00 **1740.** Absorption of mixtures of essential amino acids from an isolated ileal loop in man. ALINE UNDERHILL ORTEN, NICHOLAS S. GIMBEL* AND ARTHUR H. SMITH. *Wayne State Univ. College of Medicine.*

Nutrition Society Business Meeting

TUESDAY, 4:30 P.M.—PALMER HOUSE, CRYSTAL ROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Program on page 446

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 505, Conrad Hilton, where owners may claim them on proper identification.

Wednesday Morning, April 17, 9:00 a.m.

Amino Acids II

WEDNESDAY, 9:00 A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: W. H. Griffith

9:00 **1741.** Essential amino acid and protein requirements of the growing rat. P. B. RAMA-RAO,* V. CHALAM METTA* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

9:15 **1742.** Comparative growth response of rats on natural and racemic amino acids. M. RECHEIGL, JR.,* J. K. LOOSLI AND H. H. WILLIAMS. *Cornell Univ.*

9:30 **1743.** Amino acid imbalance in low protein diets. P. D. DESHPANDE* AND C. A. ELVEHJEM. *Univ. of Wisconsin.*

9:45 **1744.** Nutrition studies with diets containing varying sources of amino acid nitrogen. GLADYS A. EMERSON AND E. E. HOWE.* *Merck Inst. for Therapeutic Research and Merck Sharp and Dohme Research Labs.*

10:00 **1745.** In vivo availability of amino acids from raw and severely autoclaved fresh pork to immature and adult rats. PRISCILLA WHEELER* AND AGNES FAY MORGAN. *Univ. of California.* (Biochem.)

10:15 **1746.** Comparison of ion exchange and microbiological procedures for the determination of free amino acids in blood plasma. L. R. RICHARDSON AND PATRICIA W. LAUDERDALE.* *Texas Agricultural Exp. Station.*

10:30 **1747.** Relationship of hydroxylysine in microbiological assays for lysine. H. E. SAUBERLICH. *Alabama Polytechnic Inst.*

10:45 **1748.** Effect of vitamin D on urinary free amino acids in the rat. J. W. CRAMER,* G. W. ENGSTROM* AND H. STEENBOCK. *Univ. of Wisconsin.*

11:00 **1749.** Amino acid supplementation of oats. D. A. BENTON AND J. N. TANG (intr. by ROBERT MACVICAR). *Oklahoma A and M College.*

11:15 **1750.** Arginine "toxicity" in rats fed raw soybean oil meal rations. RAYMOND BORCHERS. *Univ. of Nebraska.*

11:30 **1751.** Phenylalanine requirement of growing chicks with special reference to utilization of D-isomer. HANS FISHER, DEWEY JOHNSON, JR. AND GILBERT LEVEILLE (intr. by M. W. TAYLOR). *Rutgers Univ.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Wednesday Afternoon, April 17, 1:30 p.m.

Symposium: Nutrition and Food Technology

WEDNESDAY, 1:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: James M. Hundley

1:30 **1752.** Introductory remarks. JAMES M. HUNDLEY, *United Nations Headquarters.*

1:40 **1753.** Agricultural trends and programs. O. V. WELLS.* *U. S. Dept. of Agriculture.*

2:20 **1754.** New developments in food processing with nutritional implications. H. E. ROBINSON. *Swift and Co.*

3:00 **1755.** Food and nutrient consumption trends and consumer problems. HAZEL K. STIEBELING. *U. S. Dept. of Agriculture.*

3:40 **1756.** Medical and public health nutritional needs. T. E. FRIEDEMANN. *Army Med. Nutrition Lab.*

American Institute of Nutrition Dinner

Presentation of Awards

WEDNESDAY, 6:30 P.M.—PALMER HOUSE

Biochemistry-Nutrition Smoker

WEDNESDAY, 9:00 P.M.—PALMER HOUSE, GRAND BALLROOM

Thursday Morning, April 18, 9:00 a.m.

Vitamins A, E and K

THURSDAY, 9:00 A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: James S. Dinning

9:00 **1757.** Torula yeast and vitamin E deficiency in the chick. J. G. BIERI, C. J. POLLARD* AND G. M. BRIGGS. *Natl. Inst. of Arthritis and Metabolic Diseases.*

9:15 **1758.** Influence of torula yeast and brewers' dried yeast on reproduction in chickens and livability of chicks. LEO S. JENSEN,* RAMON FRY* AND JAMES MCGINNIS. *State College of Washington.*

9:30 **1759.** Creatine metabolism in vitamin E deficiency. JAMES S. DINNING AND COY D. FITCH.* *Univ. of Arkansas School of Medicine.*

9:45 **1760.** Biochemical effects of vitamin E deficiency in monkeys. PAUL L. DAY, DOUGLAS E. YOUNG* AND JAMES S. DINNING. *Univ. of Arkansas School of Medicine.*

10:00 **1761.** Serum proteins, lipoproteins and glycoproteins in mice with hereditary muscular dystrophy. HANS OPPENHEIMER,* ALMA DE LUCA* AND ADE T. MILHORAT. *Cornell Univ. Med. College, New York Hosp.*

10:15 **1762.** Tocopherol and other lipides in electron transport. KENNETH O. DONALDSON AND ALVIN NASON (intr. by E. V. MCCOLLUM). *McCollum-Pratt Inst., Johns Hopkins Univ.*

10:30 **1763.** Levels of menadione and resistance to fowl typhoid. C. H. HILL AND H. W. GARREN (intr. by G. H. WISE). *North Carolina State College.*

10:45 **1764.** Disappearance of vitamin A in the rat. C. J. POLLARD* AND J. G. BIERI. *Natl. Inst. of Arthritis and Metabolic Diseases.*

11:00 **1765.** In vivo and in vitro hydrolysis of vitamin A esters and esterification of vitamin A alcohol. EDWARD G. HIGH, J. RONALD POWELL* AND HENRY B. BRIGHT.* *Meharry Med. College.*

11:15 **1766.** Site of intestinal conversion of carotene to vitamin A. RUVEN GREENBERG. *Univ. of Illinois Med. School.* (Physiol.)

Registration

Registration Desks are located in the following places:
Conrad Hilton, Lower Lobby
Palmer House, Exhibition Hall

Thursday Afternoon, April 18, 1:30 p.m.

Inorganic Elements

THURSDAY, 1:30 P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: C. L. Comar

1:30 **1767.** Molybdenum in chick, poult and avian nutrition. J. R. COUCH, A. A. KURNICK,* B. L. REID* AND R. L. SVACHA.* *Texas A and M College System.*

1:45 **1768.** Factors controlling metabolism of zinc in rats. H. PATRICK, J. A. BACON,* K. N. CARTER* AND F. MRAZ.* *UT-AEC Agricultural Research Program.*

2:00 **1769.** Occurrence of zinc in the mosquito and other insects. CALVIN A. LANG (intr. by ERNESTINE B. MCCOLLUM). *Johns Hopkins Univ.*

2:15 **1770.** Zinc and another inorganic growth factor required by Tenebrio molitor. G. FRAENKEL. *Univ. of Illinois.*

2:30 **1771.** Symptoms of zinc deficiency in the chick. B. L. O'DELL AND J. E. SAVAGE.* *Univ. of Missouri.*

2:45 **1772.** Production of osteomalacia and senile osteoporosis. J. F. MCCLENDON AND J. GERSHON-COHEN.* *Albert Einstein Med. Ctr.*

3:00 **1773.** Absorption and distribution of Cr^{51} in the albino rat. ROBERT D. MACKENZIE* AND C. A. HOPPERT. *Michigan State Univ.*

3:15 **1774.** Effect of feeding an atherogenic diet on magnesium requirement. JOSEPH J. VITALE,* P. L. WHITE,* M. NAKAMURA* AND D. M. HEGSTED. *Harvard School of Public Health.*

3:30 **1775.** Interrelationship between ascorbic acid and vitamin E in iron absorption and metabolism in the rat. ROBERT G. TUCKER,* ARTHUR E. HEMING, JOYCE K. MATHUES* AND SAMUEL M. GREENBERG. *Smith, Kline and French Labs.*

3:45 **1776.** Dietary factors controlling the excretory patterns of cesium-134, potassium-42 and rubidium-86. F. R. MRAZ* AND H. PATRICK. *UT-AEC Agricultural Research Program.*

4:00 **1777.** Effects of incorporating low levels of sodium fluoride in the drinking water of albino rats. W. F. RAMSEYER (intr. by C. M. MCCAY). *Swift and Co. and Cornell Univ.*

Nutrition Society Business Meeting

THURSDAY, 4:30 P.M.—PALMER HOUSE, CRYSTAL ROOM

Friday Morning, April 19, 9:00 a.m.

Riboflavin, Pyridoxine, Choline and Biotin

FRIDAY, 9:00 A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: Paul György

9:00 **1778.** Effect of high fat diets on the riboflavin requirements of cats. S. N. GERSHOFF* AND D. M. HEGSTED. *Harvard School of Public Health.*

9:15 **1779.** Derangement of carbohydrate metabolism in the riboflavin-deficient rat. MARY RUTH NELSON,* LOTTE ARNRICH* AND AGNES FAY MORGAN. *Univ. of California.*

9:30 **1780.** Relationships of protein and fat in pyridoxine deficiency. MARY ANN WILLIAMS AND NINA L. COHEN (intr. by RUTH OKEY). *Univ. of California.*

9:45 **1781.** Weekly changes in hemoglobin, hematocrit and total protein in blood of control and vitamin B_6-deficient pregnant and non-pregnant rats. RUTH L. PIKE AND MYRTLE L. BROWN (intr. by MARY L. DODDS). *Pennsylvania State Univ.*

10:00 **1782.** Nutritional studies with ethanolamine in the chick. ROBERT L. WIXOM,* GEORGE E. PIPKIN,* JOHN H. WIKMAN* AND PAUL L. DAY. *Univ. of Arkansas School of Medicine.*

10:15 **1783.** Choline deficiency and mitochondrial morphology in the rat. SIMEON RYAN* AND NELSON J. WADE. *St. Louis Univ.* (Physiol.)

10:30 **1784.** Metabolism of the biotin-deficient rat: oxidation of acetate-2-C^{14} and incorporation into hepatic lipids, cholesterol and glycogen. MARY R. GRAM (intr. by AGNES FAY MORGAN). *Univ. of California.*

10:45 **1785.** Effects of dietary carbohydrates on utilization of biotin in rats. DOROTHY R. JUTTON* AND HELEN T. PARSONS. *Univ. of Wisconsin.*

THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS

Forty-first Annual Meeting

CHICAGO, APRIL 15–19, 1957

An asterisk following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 15, 1:30 p.m.

Tissue Culture

MONDAY, 1:30 P.M.—CONGRESS, GOLD ROOM

Chairman: Harry Eagle

1:30 **1786.** Response of established cell strains to eastern equine encephalomyelitis virus in relation to cell activity. G. O. GEY, F. B. BANG, M. FOARD* AND M. SVOTELIS.* *Johns Hopkins Univ. School of Medicine and School of Hygiene and Public Health.*

1:45 **1787.** Virus susceptibility of serially cultivated human heart tissue cultures. ANTHONY J. GIRARDI (intr. by M. R. HILLEMAN). *Microbiological Research Fndn.*

2:00 **1788.** Metabolic effects of animal viruses in tissue culture. HILTON B. LEVY, SAMUEL BARON AND WALLACE P. ROWE (intr. by KARL HABEL). *Natl. Insts. of Health.*

2:15 **1789.** Isolation of nutritional variants from a mammalian cell culture. H. E. SWIM* AND R. F. PARKER. *Western Reserve Univ.*

2:30 **1790.** Submerged culture of mammalian cells—the spinner culture. WILLIAM F. MCLIMANS, ELDON V. DAVIS,* FLETCHER GLOVER,* ADRIAN RAKE* AND GEOFFREY W. RAKE. *Wistar Inst. of Anatomy and Biology and Univ. of Pennsylvania.*

2:45 **1791.** Investigation of the "L" cell/herpes virus interaction in submerged (spinner) culture. ELDON V. DAVIS,* WILLIAM F. MCLIMANS, F. L. GLOVER,* C. J. KUCERA,* D. W. ZIEGLER* AND GEOFFREY W. RAKE. *Wistar Inst. of Anatomy and Biology and Univ. of Pennsylvania.*

3:00 **1792.** Very rapid formation of antibody in vitro. KINGSLEY M. STEVENS AND JOHN M. MCKENNA.* *Merck Sharp and Dohme Research Labs.*

3:15 **1793.** Antibody formation initiated in vitro. JOHN M. MCKENNA* AND KINGSLEY M. STEVENS. *Merck Sharp and Dohme Research Labs.*

3:30 **1794.** Cytotoxic effect of complement with rabbit antisera directed against HeLa cells grown in rabbit sera. GERALD GOLDSTEIN* AND QUENTIN N. MYRVIK. *Univ. of Virginia School of Medicine.*

3:45 **1795.** Antibody production in tissue culture. MARIA C. MICHAELIDES (intr. by A. H. COONS). *Harvard Med. School.*

Complement; Properdin; Blood Groups

MONDAY, 1:30 P.M.—CONGRESS, FLORENTINE ROOM

Chairman: E. A. Kabat

1:30 **1796.** Kinetics of formation and disappearance of intermediates in hemolysis by complement. LOUIS G. HOFFMANN,* MANFRED M. MAYER, HERBERT J. RAPP* AND JOSE R. VINAS.* *Johns Hopkins Univ. School of Hygiene and Public Health.*

1:45 **1797.** Characteristics of an esterase derived from preparations of the first component of complement. O. D. RATNOFF* AND I. H. LEPOW. *Western Reserve Univ. School of Medicine.*

2:00 **1798.** Activation of a pro-esterase associated with partially purified first component of human complement. I. H. LEPOW, O. D. RATNOFF* AND L. R. LEVY.* *Western Reserve Univ. School of Medicine.*

2:15 **1799.** Influence of amboceptor concentration on uptake of complement at 0° C. DAVID L. MCVICKAR (intr. by A. F. RASMUSSEN, JR.). *Univ. of California School of Medicine.*

2:30 **1800.** Some physical and chemical properties of anticomplement. W. S. JETER AND ALBERT P. MCKEE. *Univ. of Iowa.*

2:45 **1801.** Bacteriophage neutralization as an assay of properdin levels in fresh serum. JAMES L. BARLOW,* HELEN VAN VUNAKIS* AND LAWRENCE LEVINE. *New York State Dept. of Health.*

3:00 **1802.** Kinetics of the reaction between zymosan and human, cow and pig properdin. MYRON A. LEON (intr. by S. S. HUDACK). *Saint Luke's Hosp., Cleveland.* (Pathol.)

3:15 **1803.** Immunochemical studies on partially hydrolyzed blood group A, B and O (H) substances. PETER Z. ALLEN* AND ELVIN A. KABAT. *Columbia Univ. Neurological Inst.*

3:30 **1804.** Use of precipitating antibody to study the saliva of secretors and non-secretors of individuals to groups A, B and O. HAROLD BAER, INGEBORG NAYLOR* AND WARNER KLOEPFER.* *Tulane Univ. School of Medicine.*

3:45 **1805.** Effect of formalin on human red cell antigens. MERWIN MOSKOWITZ AND SAUL CARB (intr. by F. JOSEPH MURRAY). *Purdue Univ.*

4:00 **1806.** Comparison of sources and methods in preparation of blood group substance A. L. M. HORGER,* E. B. GERHEIM AND H. R. MAXWELL.* *Sherman Labs.*

Registration

Registration Desks are located in the following places:
Conrad Hilton, Lower Lobby
Palmer House, Exhibition Hall

Placement Service

Lower Lobby, Conrad Hilton

Press Room

Room 550, Fifth Floor, Conrad Hilton

Tuesday Morning, April 16, 9:00 a.m.

Toxins

TUESDAY, 9:00 A.M.—CONGRESS, GOLD ROOM

Chairman: C. M. MacLeod

9:00 **1807.** Type-specific toxins in group A streptococcal lesion extracts. DENNIS W. WATSON. *Univ. of Minnesota.*

9:15 **1808.** Immunologic response of man to purified bivalent AB botulinum toxoid. LEONARD F. DEVINE,* JAMES T. DUFF,* MARY A. FIOCK* AND GEORGE G. WRIGHT. *Fort Detrick.*

9:30 **1809.** Production of multiple antibodies in human subjects following hyperimmunization with diphtheria toxoid. WILLIAM J. KUHNS. *Univ. of Pittsburgh Med. School.*

9:45 **1810.** I-131 trace iodination of diphtheria toxin. S. P. MASOUREDIS (intr. by W. J. KUHNS). *Univ. of Pittsburgh Med. School.*

10:00 **1811.** Alteration of bacterial endotoxins by human and rabbit serum. JOHN E. STAUCH AND ARTHUR G. JOHNSON (intr. by W. J. NUNGESTER). *Univ. of Michigan.*

10:15 **1812.** Effect of brucella endotoxin on adrenocortical function in the dog. J. C. MELBY,* R. H. EGDAHL* AND W. W. SPINK. *Univ. of Minnesota Med. School.*

10:30 **1813.** Effects of diphtheria toxin on mammalian cells cultivated in vitro. E. S. LENNOX AND A. S. KAPLAN (intr. by H. H. MITCHELL). *Univ. of Illinois.* (Biochem.)

10:45 **1814.** Studies concerning Neisseria gonorrhoeae endotoxin. HENRY TAUBER AND WARFIELD GARSON.* *Univ. of North Carolina School of Public Health.* (Biochem.)

11:00 **1815.** Presidential address. MERRILL W. CHASE. *Rockefeller Inst. for Med. Research.*

Exhibits

CONRAD HILTON, EXHIBITION HALL

Monday–Thursday, April 15–18, 8:45 A.M.–6:00 P.M.
Friday, April 19, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 569.

Offices

Federation Office, Room 505, Fifth Floor, Conrad Hilton
Exhibit Manager's Office, Exhibition Hall, Conrad Hilton

Tuesday Afternoon, April 16, 1:30 p.m.

Poliomyelitis I

TUESDAY, 1:30 P.M.—CONGRESS, GOLD ROOM

Chairman: A. B. Sabin

1:30 **1816.** Replication of poliovirus in primate cells maintained under anaerobic conditions. GEORGE E. GIFFORD* AND JEROME T. SYVERTON. *Univ. of Minnesota.*

1:45 **1817.** Growth of poliovirus in tissue cultures of rhesus monkey testicular cells. ALFRED A. TYTELL AND W. P. FISHER.* *Merck Sharp and Dohme Research Labs.*

2:00 **1818.** Poliovirus synthesis in monkey kidney cells grown in synthetic medium. CATHERINE RAPPAPORT* AND JOSEPH L. MELNICK. *Yale Univ.*

2:15 **1819.** Formation of a stable cell-virus complex. FRANCIS E. PAYNE* AND W. WILBUR ACKERMANN. *Univ. of Michigan School of Public Health.*

2:30 **1820.** Action of immune serum upon a cell-virus complex. W. WILBUR ACKERMANN AND FRANCIS E. PAYNE.* *Univ. of Michigan School of Public Health.*

2:45 **1821.** Effect of environmental temperature on the host cell (HeLa) poliovirus interaction. EDNA LARSON,* WILLIAM F. MCLIMANS, GEOFFREY W. RAKE AND C. V. HARDING.* *Wistar Inst. of Anatomy and Biology and Univ. of Pennsylvania.*

3:00 **1822.** Variation in virulence of mouse-adapted Type III poliovirus. C. P. LI AND W. D. MCBRIDE.* *Natl. Insts. of Health.*

3:15 **1823.** Mixed infections between echo and polioviruses. MATHILDA BENYESH,* HEIHACHI ITOH,* G.-D. HSIUNG* AND JOSEPH L. MELNICK. *Yale Univ.*

3:30 **1824.** Double infection of cells with measles and poliovirus. MAGDALENA REISSIG* AND JOSEPH L. MELNICK. *Yale Univ.*

Antigens and Antibodies I

TUESDAY, 1:30 P.M.—CONGRESS, FLORENTINE ROOM

Chairman: W. C. Boyd

1:30 **1825.** Cross reactions of B-linked polyglucoses in Type VIII and Type III antipneumococcal sera. M. HEIDELBERGER AND P. A. REBERS.* *Rutgers, The State Univ.* (Biochem.)

1:45 **1826.** Crossreaction of Type II antipneumococcal serum with dextrans. JOEL W. GOODMAN* AND ELVIN A. KABAT. *Columbia Univ. Neurological Inst.*

2:00 **1827.** Immunochemical properties of synthetic polypeptides and polypeptidyl proteins. EVA DELLERT,* DOROTHY J. BUCHANAN* AND MARK A. STAHMANN. *Univ. of Wisconsin.* (Biochem.)

2:15 **1828.** Antigenic specificity of pathological macroglobulins. LEONARD KORNGOLD AND GERDA VAN LEEUWEN.* Sloan-Kettering Inst. for Cancer Research.

2:30 **1829.** Antibody production to phosphohexose isomerase. MARIE N. LIPSETT,* RUTH B. REISBERG* AND OSCAR BODANSKY. *Sloan-Kettering Inst. for Cancer Research.* (Biochem.)

2:45 **1830.** Investigation of antibody-hapten interaction by competitive binding. ALFRED NISONOFF* AND DAVID PRESSMAN. *Roswell Park Memorial Inst.* (Biochem.)

3:00 **1831.** Kinetics of an antigen-antibody reaction: the luciferase-antiluciferase system. FREDERICK I. TSUJI AND DAVID L. DAVIS.* *VA Hosp. and Univ. of Pittsburgh.* (Biochem.)

3:15 **1832.** Antigen-antibody reactions in agar: IV, effect of antibody content and other factors on the R′ value. J. C. NEFF* AND E. L. BECKER. *Walter Reed Army Inst. of Research.*

3:30 **1833.** Cross reactions between hen and duck egg albumins. DOROTHY J. BUCHANAN* AND J. OUDIN. *Institut Pasteur, Paris.*

3:45 **1834.** Integration of human serum and plasma fraction diffusion patterns in agar columns. WILLIAM G. GLENN AND ANNA C. GARNER (intr. by ALAN A. BOYDEN). *USAF School of Aviation Medicine.*

Immunology Society Business Meeting

TUESDAY, 4:30 P.M.—CONGRESS, FLORENTINE ROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Program on page 446

Wednesday Morning, April 17, 9:00 a.m.

Poliomyelitis II

WEDNESDAY, 9:00 A.M.—CONGRESS, GOLD ROOM

Chairman: J. L. Melnick

9:00 **1835.** Chick potency testing of poliomyelitis vaccines: response of chicks to poliovirus preparations. E. A. TIMM,* E. ROPE* AND I. W. MCLEAN, JR. *Parke, Davis and Co.*

9:15 **1836.** Delay in appearance of plaques with partially inactivated poliovirus. W. A. RIGHTSEL,* I. W. MCLEAN, JR., E. A. TIMM,* P. SCHULTZ* AND A. R. TAYLOR. *Parke, Davis and Co.*

9:30 **1837.** Effect of calf serum on concentration of poliovirus in the preparative ultracentrifuge. SAMUEL BARON (intr. by JOEL WARREN). *Natl. Insts. of Health.*

9:45 **1838.** A disc method for titration and neutralization of poliovirus. SEYMOUR S. KALTER. *Communicable Disease Ctr., USPHS, Montgomery, Ala.*

10:00 **1839.** Preparation and formaldehyde inactivation of pure poliovirus. JESSE CHARNEY, W. P. FISHER AND ROY A. MACHLOWITZ (intr. by ALFRED A. TYTELL). *Merck Sharp and Dohme Research Labs.*

10:15 **1840.** Serologic response of school children to delayed second inoculation of poliomyelitis vaccine. GORDON C. BROWN. *School of Public Health, Univ. of Michigan.*

10:30 **1841.** Development of complement fixing antibody in animals receiving living and inactivated poliovirus. J. DONALD HARE* AND JOEL WARREN. *Natl. Insts. of Health.*

10:45 **1842.** Fractionation and alteration of complement-fixing poliovirus antigens. B. ROIZMAN,* H. J. RAPP* AND M. M. MAYER. *Johns Hopkins Univ. School of Hygiene and Public Health.*

11:00 **1843.** Precipitation reactions in agar with poliovirus concentrates. GEORGE L. LEBOUVIER (intr. by JOHN R. PAUL). *Yale Univ. School of Medicine.*

11:15 **1844.** Serotherapy of poliomyelitis in rhesus monkeys. OSCAR C. LIU, JOSEPH E. CARTER AND BETTYLEE HAMPIL (intr. by KINGSLEY M. STEVENS). *Merck Sharp and Dohme Research Labs.*

Antigens and Antibodies: II

WEDNESDAY, 9:00 A.M.—CONGRESS, FLORENTINE ROOM

Chairman: A. H. Coons

9:00 **1845.** Antibody production by cells of the neonatal rabbit. FRANK J. DIXON AND WILLIAM O. WEIGLE.* *Univ. of Pittsburgh School of Medicine.*

9:15 **1846.** Synthesis of serum proteins in the neonatal and developing rabbit. MARIA P. DEICHMILLER* AND FRANK J. DIXON. *Univ. of Pittsburgh School of Medicine.*

9:30 **1847.** Inhibition of antibody response to heterologous protein in rabbits by neonatal exposure. RICHARD T. SMITH, R. A. BRIDGES, E. M. THOMSON, H. W. KEAIRNES, V. OLMANSON AND M. L. WILL (intr. by LEWIS THOMAS). *Univ. of Minnesota.*

9:45 **1848.** Antibody response of rats, mice and guinea pigs to bovine serum albumin as measured by the antigen binding capacity test. RICHARD STUDLEY FARR. *Univ. of Pittsburgh and Univ. of Chicago.*

10:00 **1849.** Acetylated rabbit serum albumin, an antigen in rabbits. PAUL H. MAURER AND J. SRI RAM.* *Univ. of Pittsburgh School of Medicine.*

10:15 **1850.** Multiplicity of components of rat kidney antigen responsible for the localization of anti-rat kidney antibodies. YASUO YAGI* AND DAVID PRESSMAN. *Roswell Park Memorial Inst.*

10:30 **1851.** Immunofluorescent reactions of human sera with iso-antigens in human heart tissue: AB blood group substances and cardiolipin. MELVIN H. KAPLAN. *House of Good Samaritan, Children's Med. Ctr. and Harvard Med. School.*

10:45 **1852.** Nuclear localization of a factor from disseminated lupus serum. G. J. FRIOU, S. C. FINCH AND K. D. DETRE (intr. by JOHN R. PAUL). *VA Hosp., West Haven, and Yale Univ. School of Medicine.*

11:00 **1853.** Applications of contrasting fluorescent labels for two antibodies. ARTHUR M. SILVERSTEIN AND PAUL J. BERRIGAN (intr. by FRED D. MAURER). *Armed Forces Inst. of Pathology.*

11:15 **1854.** Decay of different antibodies in the guinea pig. MARIAN ELLIOTT KOSHLAND. *Brookhaven Natl. Lab.*

11:30 **1855.** Incorporation of S^{35}-amino acids into antibodies in primary and secondary response. HSIEH FU CHENG* AND FELIX HAUROWITZ. *Indiana Univ.*

Ticket Sales

Tickets for society dinners, special scientific dinner meetings, group luncheons and breakfasts, and other informal functions will be on sale in the Lower Lobby of the Conrad Hilton.

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lower Lobby of the Conrad Hilton to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Wednesday Afternoon, April 17, 1:30 p.m.

Adenovirus Group; Influenza

WEDNESDAY, 1:30 P.M.—CONGRESS, GOLD ROOM

Chairman: F. M. Davenport

1:30 **1856.** Preliminary physical studies of adenovirus. F. B. BRANDON,* A. R. TAYLOR, M. PATTERSON* AND I. W. MCLEAN, JR. *Parke Davis and Co.*

1:45 **1857.** Mechanism of a persistent adenovirus infection. HAROLD S. GINSBERG. *Western Reserve Univ. School of Medicine.*

2:00 **1858.** Inhibition of adenoviruses by normal animal sera. ELI GOLD* AND HAROLD S. GINSBERG. *Western Reserve Univ. School of Medicine.*

2:15 **1859.** Intracellular localization of adenoviruses. FLOYD W. DENNY, JR.,* GEORGIANA S. BOYER* AND HAROLD S. GINSBERG. *Western Reserve Univ. School of Medicine.*

2:30 **1860.** Comparison of adenovirus growth in a variety of human tissue cultures including three HeLa cell lines. J. THOMAS GRAYSTON, MABEL E. SMITH AND MARY A. MCCARTHY (intr. by CLAYTON G. LOOSLI). *Univ. of Chicago.*

2:45 **1861.** Respiratory illness in volunteers given live adenovirus intramuscularly. M. R. HILLEMAN, R. E. HODGES,* M. S. WARFIELD* AND S. A. ANDERSON.* *Walter Reed Army Inst. of Research.*

3:00 **1862.** Mechanism of action of emulsified vaccines. ROBERT W. MCKINNEY* AND FRED M. DAVENPORT. *Univ. of Michigan School of Public Health.*

3:15 **1863.** Relation between physical properties of adjuvant vaccines made with petroleum, synthetic or vegetable oils, and antibody response. BYRON S. BERLIN (intr. by THOMAS FRANCIS, JR.). *Univ. of Michigan School of Public Health.*

3:30 **1864.** Enhancement of virus multiplication. IGOR TAMM AND MARJORIE M. NEMES.* *Rockefeller Inst.*

3:45 **1865.** Action of influenza virus enzymes on human erythrocyte stroma and on soluble inhibitors of viral hemagglutination. CALDERON HOWE. *Columbia Univ.*

4:00 **1866.** Antigenic mutants of influenza virus. B. A. BRIODY. *Hahnemann Med. College.*

4:15 **1867.** Enzymatic variants of influenza virus. DUARD L. WALKER AND BILLE L. PADGETT (intr. by C. V. SEASTONE). *Univ. of Wisconsin Med. School.*

Antigens and Antibodies III

WEDNESDAY, 1:30 P.M.—CONGRESS, FLORENTINE ROOM

Chairman: F. J. Dixon

1:30 **1868.** In vivo antigen-antibody complexes. WILLIAM O. WEIGLE (intr. by FRANK J. DIXON). *Univ. of Pittsburgh School of Medicine.*

1:45 **1869.** A new method for the purification of precipitating and non-precipitating antibody. G. BONAR SUTHERLAND* AND DAN H. CAMPBELL. *Univ. of Kansas and California Inst. of Technology.*

2:00 **1870.** Antibody decay rates in cold-exposed rabbits. IGNATIUS L. TRAPANI (intr. by JUSTINE S. GARVEY). *California Inst. of Technology.*

2:15 **1871.** Adjuvant action on antibody production of bacterial endotoxins. PHYLLIS KIND, YI-CHI MEI AND ARTHUR G. JOHNSON (intr. by W. J. NUNGESTER). *Univ. of Michigan.*

2:30 **1872.** Release of histamine from rabbit blood by means of antigen-antibody precipitates. J. F. BARBARO (intr. by E. L. BECKER). *Walter Reed Army Inst. of Research.*

2:45 **1873.** Kinetics of immune hemolysis employing Cr^{51} labeled sheep red blood cells. ROY S. WEINRACH* AND DAVID W. TALMAGE. *Univ. of Chicago.*

3:00 **1874.** Dissociation behavior of hemocyanin from the giant key-hole limpet. ALLEN H. BARTEL AND JEROME R. VINOGRAD (intr. by DAN H. CAMPBELL). *California Inst. of Technology.*

3:15 **1875.** Antibody inactivation of tobacco mosaic virus. I. RAPPAPORT (intr. by RAY D. OWEN). *Univ. of California.*

3:30 **1876.** Relation of eosinophil cells to immunity. R. S. SPEIRS. *State Univ. of New York.* (Physiol.)

3:45 **1877.** Unusual high molecular weight protein component in serum of certain patients with rheumatoid arthritis. E. C. FRANKLIN,* H. R. HOLMAN,* H. J. MÜLLER-EBERHARD* AND H. G. KUNKEL. *Rockefeller Inst. for Med. Research.* (Biochem.)

4:00 **1878.** A new serological test for detection of viral antigens. DIEGO SEGRE (intr. by D. T. BERMAN). *Univ. of Wisconsin.*

Wednesday Evening, April 17, 8:00 p.m.

Symposium: Non-specific Effects of Gram-negative Bacteria and Polysaccharide Complexes on Resistance to Infection and on Antibody Formation

WEDNESDAY, 8:00 P.M.—CONGRESS, GOLD ROOM

Chairman: Merrill W. Chase

1879. Resistance to gram-positive and acid-fast bacteria induced by Pertussis vaccine and by lipopolysaccharides. RENÉ J. DUBOS, RUSSELL W. SCHAEDLER AND DIETHELM BOEHME. *Rockefeller Inst. for Med. Research. Discussion:* MAURICE LANDY. *Natl. Cancer Inst.*

1880. Host responses elicited by polysaccharides of bacterial and mammalian derivation. MAURICE LANDY AND MURRAY J. SHEAR. *Natl. Cancer Inst.*

1881. Relation of lipopolysaccharide to activity of the reticulo-endothelial system. B. BENACERRAF. *New York Univ. School of Medicine.*

1882. Effect of Hemophilus pertussis on immunological and physiological reactions. MARGARET PITTMAN. *Natl. Insts. of Health.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lower Lobby of the Conrad Hilton.

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 505, Conrad Hilton, where owners may claim them on proper identification.

Thursday Morning, April 18, 9:00 a.m.

Hypersensitivity I

THURSDAY, 9:00 A.M.—CONGRESS, FLORENTINE ROOM

Chairman: Jules Freund

9:00 **1883.** Anaphylactic shock induced by soluble antigen-antibody complexes in unsensitized normal guinea pigs. FREDERICK G. GERMUTH, JR. AND GEORGE E. MCKINNON.* *Johns Hopkins Med. School.*

9:15 **1884.** Antigenicity of asthmatic sputum. ABO hemagglutinating and gel-percipitating activity of rabbit anti-A sputum serums. SAMUEL C. BUKANTZ AND ALINE W. BERNS.* *Washington Univ.*

9:30 **1885.** Chemical nature and blood group substance content and activity of asthmatic sputum. ALINE W. BERNS* AND SAMUEL C. BUKANTZ. *Washington Univ.*

9:45 **1886.** Permeability of isolated lymph node cells in relation to delayed type skin sensitivity. H. N. EISEN, M. KERN* AND W. T. NEWTON.* *Washington Univ. School of Medicine and Bernard Free Skin and Cancer Hosp.*

10:00 **1887.** Enhancement of antibody production by injection of tuberculin in sensitive rabbits. ROBERT A. GOOD, RICHARD M. CONDIE, GAIL THOMPSON AND DONNA R. JENSEN (intr. by DENNIS W. WATSON). *Univ. of Minnesota.*

10:15 **1888.** Toxicity of guinea pig serum for guinea pigs. JACK R. BATTISTO (intr. by MERRILL W. CHASE). *Univ. of Arkansas School of Medicine.*

10:30 **1889.** Assay of experimental allergic encephalomyelitic activity in bovine cord fractions. MARIAN W. KIES, ELIZABETH ROBOZ AND ELLSWORTH C. ALVORD, JR.* *Natl. Inst. of Mental Health, Georgetown Univ. Med. School, and Baylor Univ. Med. School.* (Biochem.)

10:45 **1890.** Production of experimental encephalomyelitis in a new host, the cat. PHILIP Y. PATERSON AND EUGENE D. BRAND (intr. by A. E. FELLER). *Univ. of Virginia School of Medicine.*

11:00 **1891.** Prevention of experimental encephalomyelitis by prior injections of homologous spinal cord. RICHARD M. CONDIE,* JOHN T. KELLY,* BERRY CAMPBELL AND ROBERT A. GOOD.* *Univ. of Minnesota.* (Physiol.)

Virus: General

THURSDAY, 9:00 A.M.—CONGRESS, FRANCIS I ROOM

Chairman: J. S. Youngner

9:00 **1892.** A study of herpes simplex virus by the plaque technique in rabbit kidney monolayers. ALBERT S. KAPLAN (intr. by MELVIN COHN). *Univ. of Illinois.*

9:15 **1893.** Measles virus grown in tissue culture. FRANCIS L. BLACK (intr. by JOSEPH L. MELNICK). *Yale Univ.*

9:30 **1894.** A new Russian virus. DOROTHY M. HORSTMANN AND ELIAS S. MANUELIDIS.* *Yale Univ.*

9:45 **1895.** Antibodies for Coxsackie viruses in Montana. DAVID B. LACKMAN AND J. FREDERICK BELL.* *Rocky Mountain Lab.*

10:00 **1896.** Immunization and challenge of hamsters to Japanese B virus by West Nile infection plus JBE vaccine. W. MCD. HAMMON AND IMAM. Z. E. IMAM.* *Grad. School of Public Health, Univ. of Pittsburgh.*

10:15 **1897.** Viral hepatitis: experimental transmission and attempts at prevention. SAUL KRUGMAN,* ROBERT WARD, JOAN P. GILES* AND MILTON A. JACOBS.* *New York Univ. College of Medicine and Willowbrook State School.*

10:30 **1898.** A serological study of primary atypical pneumonia. CH'IEN LIU AND JAMES T. HEYL.* *Harvard Med. School and Phillips Exeter Academy.*

10:45 **1899.** Complement fixation studies with agents from patients with Boston exanthem disease. FRANKLIN A. NEVA AND MARY F. MALONE (intr. by T. H. WELLER). *Harvard School of Public Health.*

11:00 **1900.** Cultivation and titration of vaccinia in bovine, avian and primate cell tissue cultures. ERNEST CUTCHINS* AND JOEL WARREN. *Natl. Insts. of Health.*

11:15 **1901.** Inhibition of Rho (D) antibody by eluates from Rho (D) erythrocytes treated with mumps virus. ROBERT W. CHANDLER,* NANCY J. BIGLEY* AND MATTHEW C. DODD. *Ohio State Univ.*

11:30 **1902.** Growth curve of Rous sarcoma virus (RSV) in chick brain. FRANK J. RAUSCHER* AND VINCENT GROUPÉ. *Rutgers, The State Univ.*

11:45 **1903.** Serological mutants and structure of phage T5. FRANK LANNI AND YVONNE THÉRY LANNI.* *Emory Univ.*

Thursday Afternoon, April 18, 1:30 p.m.

Hypersensitivity II

THURSDAY, 1:30 P.M.—CONGRESS, FLORENTINE ROOM

Chairman: M. W. Chase

1:30 **1904.** Anaphylaxis in the mouse. SANFORD H. STONE* AND JULES FREUND. *Public Health Research Inst. of New York.*

1:45 **1905.** Quantitation of anaphylaxis in mice. WILLIAM E. HARRIS AND JOHN D. FULTON (intr. by L. P. GEBHARDT). *USAF School of Aviation Medicine.*

2:00 **1906.** Effect of H. pertussis on sensitivity of mice to serotonin. J. MUNOZ AND M. A. GREENWALD.* *Merck Inst. for Therapeutic Research.*

2:15 **1907.** Comparative inhibition of anaphylaxis in mice by tranquilizers and other drugs. CHARLES L. FOX, JR., JULIA M. EINBINDER* AND CARL T. NELSON. *New York Med. College, Flower-Fifth Ave. Hosps.* and *Columbia Univ.*

2:30 **1908.** Human blocking-type, skin-sensitizing antibody. N. C. PALCZUK* AND J. A. FLICK. *Univ. of Pennsylvania School of Medicine.*

2:45 **1909.** Antibody production demonstrated by passive transfer of cells and dye localization. L. T. ROSENBERG,* M. H. CHANDLER,* A. S. GORDON AND E. E. FISCHEL. *New York Univ. Grad. School of Arts and Science,* and *the Bronx Hosp.*

3:00 **1910.** Elution of pollen antigens from tannic acid treated erythrocytes. RICHARD J. FEINBERG* AND JOHN A. FLICK. *Univ. of Pennsylvania School of Medicine.*

3:15 **1911.** Mechanism of passive cutaneous anaphylaxis. ABRAHAM G. OSLER, MARY M. HAWRISIAK* AND ZOLTAN OVARY.* *Johns Hopkins School of Hygiene and Public Health.*

3:30 **1912.** Response of rabbits to injections of low molecular weight carbohydrates. NANCY J. BIGLEY,* MATTHEW C. DODD AND FRANCIS W. MCCOY.* *Ohio State Univ.*

Bacteria: Rickettsia

THURSDAY, 1:30 P.M.—CONGRESS, FRANCIS I ROOM

Chairman: S. S. Elberg

1:30 **1913.** Accessory factors in rabbit and human blood involved in the bactericidal test for type-specific antibody to group A streptococci. G. H. STOLLERMAN, F. S. KANTOR AND B. D. GORDON (intr. by SAMUEL FEINBERG). *Northwestern Univ.*

1:45 **1914.** Long chain formation by a strain of group A streptococcus (type 30) in the presence of homologous antiserum. RICHARD EKSTEDT AND GENE H. STOLLERMAN (intr. by GUY P. YOUMANS). *Northwestern Univ. Med. School.*

2:00 **1915.** Antigenic variant of type 61 pneumococcus. STANLEY E. MILLS* AND HENRY P. TREFFERS. *Yale Univ.*

2:15 **1916.** Relationship of agglutinogen to other antigens of H. pertussis. L. F. SCHUCHARDT,* J. F. SAGIN* AND J. MUNOZ. *Merck Inst. for Therapeutic Research.*

2:30 **1917.** Possible relationships of phagocytosis to virulence and immunity in plague. D. C. CAVANAUGH, M. L. SPIVACK AND R. RANDALL (intr. by M. R. HILLEMAN). *Walter Reed Army Inst. of Research.*

2:45 **1918.** A comparison of the growth of certain mycobacteria in HeLa, monkey kidney, human amnion and X-irradiated HeLa cells. CHARLES C. SHEPARD. *Communicable Disease Ctr., USPHS, Montgomery, Ala.*

3:00 **1919.** Duration of hemagglutinin response of patients with shigellosis and salmonellosis. ERWIN NETER AND DONALD DUNPHY.* *Children's Hosp. and Univ. of Buffalo.*

3:15 **1920.** Antibodies for pathogenic and non-pathogenic serotypes of Escherichia coli in human colostrum and serum. ROBERT B. LINDBERG AND DONALD H. HUNTER.* *Walter Reed Army Inst. of Research.*

3:30 **1921.** Duration of immunity to epidemic typhus induced by living avirulent R. prowazeki, strain E. JOHN P. FOX, MARTHA E. JORDAN* AND HENRY M. GELFAND.* *Tulane Univ. School of Medicine.*

3:45 **1922.** Serological diagnosis of Rocky Mountain spotted fever and murine typhus. DAVID F. HERSEY* AND CHARLES C. SHEPARD. *USPHA Communicable Disease Ctr., Montgomery, Ala.*

4:00 **1923.** Yeast protein with antibiotic properties. I. A. PARFENTJEV. *Yale Univ. School of Medicine.*

Friday Morning, April 19, 9:00 a.m.

Antigens and Antibodies IV

FRIDAY, 9:00 A.M.—CONGRESS, FLORENTINE ROOM

Chairman: M. M. Mayer

9:00 **1924.** Production of antibodies against rabbit thyroid in rabbits by injection of foreign thyroid extracts. NOEL R. ROSE AND ERNEST WITEBSKY. *Univ. of Buffalo School of Medicine.*

9:15 **1925.** Thyralbumin—a new antigen from thyroid tissue. SIDNEY SHULMAN,* NOEL R. ROSE AND ERNEST WITEBSKY. *Univ. of Buffalo School of Medicine.*

9:30 **1926.** Procedure for increasing sensitivity of tests for specific treponemal antibody. BARBARA J. ROSENAU* AND JOHN F. KENT. *Walter Reed Army Inst. of Research.*

9:45 **1927.** Effects of intraperitoneal injections of large doses of bovine serum albumin at hatching on subsequent inoculations of homologous and heterologous proteins. C. TEMPELIS,* H. R. WOLFE AND A. MUELLER.* *Univ. of Wisconsin.*

10:00 **1928.** Effects of anti-mouse spleen antibodies. DANIEL A. BOROFF AND RICHARD A. ZUCKER.* *New England Inst. for Med. Research.*

10:15 **1929.** Tissue-localizing response to injected antigen in active and passive immunity. REUBEN L. KAHN. *Univ. of Michigan.*

10:30 **1930.** Specificity of reaction of chicken antiserum in high NaCl concentrations. MORRIS GOODMAN AND D. S. RAMSEY.* *Detroit Inst. of Cancer Research.*

10:45 **1931.** Relationships between route of antigen injection and the hemolysin response in rabbits. LAURENCE R. DRAPER AND DIETER H. SUSSDORF (intr. by W. H. TALIAFERRO). *Univ. of Chicago.*

11:00 **1932.** A quantitative study of the development of the antibody response of chickens to bovine serum albumin. H. R. WOLFE, A. MUELLER,* J. NEESS* AND C. TEMPELIS.* *Univ. of Wisconsin.*

11:15 **1933.** Enhanced antibody response in mice immunized with bovine serum albumin (BSA) incorporated into particles made from hemoglobin. ERIC L. NELSON (intr. by C. P. MILLER). *Univ. of Chicago.*

11:30 **1934.** Development of platelet antibodies. MARIO STEFANINI AND STEN A. KISTNER.* *St. Elizabeth's Hosp. and Tufts Univ. School of Medicine.*

Immunology: General

FRIDAY, 9:00 A.M.—CONGRESS, FRANCIS I ROOM

Chairman: D. H. Campbell

9:00 **1935.** Inhibition of immune hemolysis by proteins and peptides. O. J. PLESCIA, K. AMIRAIAN* AND G. CAVALLO.* *Rutgers, The State Univ.*

9:15 **1936.** Inhibition of immune hemolysis by constituents of serum. K. AMIRAIAN,* O. J. PLESCIA, G. CAVALLO* AND M. HEIDELBERGER. *Rutgers, The State Univ.*

9:30 **1937.** Inhibition of immune hemolysis by its products. G. CAVALLO,* O. J. PLESCIA, K. AMIRAIAN* AND M. HEIDELBERGER. *Rutgers, The State Univ.*

9:45 **1938.** Vitamin B_{12} binding and paper electrophoretic patterns of serum. ROBERT L. DAVIS* AND BACON F. CHOW. *VA Hosp., Baltimore, and School of Hygiene and Public Health, Johns Hopkins Univ.*

10:00 **1939.** Relationship between insusceptibility to phagocytosis and virulence of certain Klebsiella pneumoniae strains. HERBERT E. HALL* AND JAMES C. HUMPHRIES. *Univ. of Kentucky.*

10:15 **1940.** Reticuloendothelial effects of some ataractic agents. R. M. MEIER,* D. A. BOROFF AND J. H. HELLER. *New England Inst. for Med. Research.*

10:30 **1941.** Extent of resistance induced by immunization against Histoplasma capsulatum. STANLEY MARCUS AND GILBERT A. HILL.* *Univ. of Utah College of Medicine.*

10:45 **1942.** Enhancement of mouse splenic desoxyribonuclease activity by the intravenous administration of crystalline or cellular desoxyribonucleic acid. DAVID M. DONALDSON AND FRANK D. TIDWELL.* *Brigham Young Univ.*

11:00 **1943.** Manifestation of skin incompatibility in parabiotic rats. C. E. HALL AND O. HALL.* *Med. Faculty, Stockholm, and Univ. of Texas Med. Branch.* (Physiol.)

11:15 **1944.** Enzyme treated erythrocytes in the diagnosis of infectious mononucleosis. GEORG F. SPRINGER AND MARIANNE D. HAYES.* *Univ. of Pennsylvania.*

11:30 **1945.** Treatment of red blood cells with alkaloids and their agglutination by tannic acid. KARL L. ROTH (intr. by PHILIP LEVINE). *Albert Einstein Med. Ctr.*

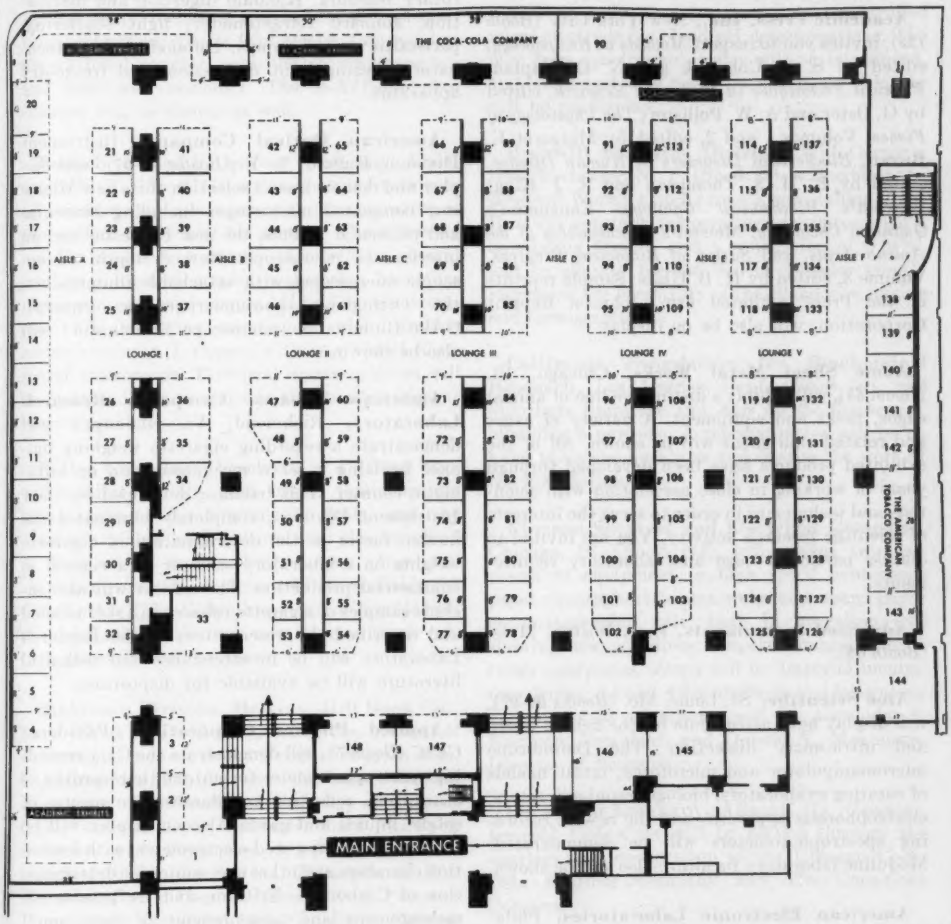
PAPERS READ BY TITLE

1946. Combined treatment of ascites tumors with hydrocortisone and radioactive chromic phosphate ($CrP^{32}O_4$). HORACE GOLDIE, HAROLD D. WEST,* WALTON M. BELLE* AND ALVARDO M. FRASER.* *Meharry Med. College.*

1947. Cellular persistence of Japanese B virus in serial HeLa cell passage. HERMAN C. MASON, BERYL T. MASON* AND MURRAY FRANKLIN.* *Illinois State Psychopathic Inst., Univ. of Illinois and Cook County Hosp.*

1948. Changing phage-pattern of staphylococci in drug-induced enteritis in Japan. SABURO NAGAKI, MAKOTO SAITO, KEIZO ISHII AND SUSUMU TOMIOKA (intr. by OSCAR FELSENFELD). *Ebara Hosp., Tokyo.*

FLOOR PLAN OF SPACE LOCATIONS FOR EXHIBITS



Industrial Scientific, Member and Institutional Exhibits will be located in the Exhibition Hall of the Conrad Hilton. Inspection periods are as follows: Monday, April 15, through Thursday, April 18, 8:45 a.m. to 6:00 p.m.; Friday, April 19, 8:45 a.m. to 1:00 p.m. For the convenience of scientists who may wish to make appointments or enjoy periods of relaxation between sessions, lounges are provided as indicated in the above floor plan.

Industrial Scientific Exhibits

Abbott Laboratories, North Chicago, Ill. (*Booth 120*).

Academic Press, Inc., New York City (*Booth 132*), invites you to inspect *Methods in Enzymology*, edited by S. P. Colowick and N. O. Kaplan; *Physical Techniques in Biological Research*, edited by G. Oster and A. W. Pollister; *The Physiology of Fishes*, Volumes 1 and 2, edited by Margaret E. Brown; *Biochemical Disorders in Human Disease*, edited by R. H. S. Thompson and E. J. King; Brachet's *Biochemical Cytology;* Kauzmann's *Quantum Chemistry;* Meister's *Biochemistry of the Amino Acids;* and *Survey of Biological Progress*, Volume 3, edited by H. B. Glass. Sample reprints of the Press' affiliated firm, Johnson Reprint Corporation, will also be on display.

Acme Sheet Metal Works, Chicago, Ill. (*Booth 85*), will exhibit a distinctive line of animal cages, racks and equipment. A variety of cages and related equipment will be shown. All of the exhibited products have been developed through years of working in close association with scientists and technicians in order to serve the interests of scientific research activity. You are invited to discuss particular cage and laboratory requirements.

Advanced Instruments, Inc., Boston, Mass. (*Booth 63*).

Aloe Scientific, St. Louis, Mo. (*Booths 96–97*), will display new instruments for the field of micro and ultra-micro dissection. The Defonbrune micromanipulator and microforge, latest models of rotating evaporators, biologic rapid-extractors, electrophoresis apparatus and the newest recording spectrophotometers will be demonstrated. Moduline laboratory furniture also will be shown.

American Electronic Laboratories, Philadelphia, Pa. (*Booth 101*), will exhibit a complete line of electrophysiological research apparatus including its "104-A" laboratory stimulator with the photic and isolator accessories, the "251-A" high gain DC amplifier, the "455-A" dual beam oscilloscope, the Model 255 high impedance probe, and the "751" student stimulator.

American Instrument Company, Inc., Silver Spring, Md. (*Booths 37–38*), will feature the new Menisco-matic buret with direct digital readout of ml. delivered, the Aminco-Bowman spectrophotofluorometer, and the new portable electrophoresis for interferometry and Schlieren observation. Other apparatus shown will be the rotary Warburg, Kjeldahl digestion and distillation, Jonnard refractometer, light scattering, peristaltic action pumps, Dubnoff shaking incubator, freezing-point depression, and freeze-dry apparatus.

American Optical Company, Instrument Division, Buffalo, N. Y. (*Booths 66–67*), will display and demonstrate a selection of its new Microstar compound microscopes including binocular and trinocular models, the new Phasestar and an interference microscope. New cycloptic stereoscopic microscopes with attachable illuminators, the Orthophot (photomicrographic camera), Ortho-Illuminator (microscope illuminator) will also be shown.

American Tobacco Company, Research Laboratory, Richmond, Va. (*Lounge*), will demonstrate a recording cigarette weighing balance utilizing a servo mechanism and an automatic counter. This balance, developed by their Instrument Division, completely eliminates the human factor in the determination of cigarette weights on a laboratory scale or as a control in commercial production. The exhibit will also include samples of cigarette tobacco suitably labeled and described. Representatives of the Research Laboratory will be in attendance and technical literature will be available for disposition.

Applied Physics Corporation, Pasadena, Calif. (*Booth 7*), will demonstrate the Cary recording spectrophotometer for automatic recording of absorption, reflection and fluorescence spectra of solids, liquids and gases. Also on display will be the Cary vibrating reed electrometer, with ionization chambers and other accessories for determination of Carbon 14, Tritium, and for precise pH measurement and measurement of very small charges, currents and voltages.

Arcady Farms Milling Company, Arcadia, Calif. (*Booth 127*).

Association of American University Presses, New Haven, Conn. (*Booth 108*). Each University Press represented in the exhibit is a separate publishing company producing technical, medical, and scholarly works as well as other books of vital interest. This joint exhibit enables you to see books from a number of the university presses and, if you so desire, to order them direct from the

booth or from the publishing press. A checklist of all the books on display is available.

Baird Associates-Atomic Instrument Co., Cambridge, Mass. (*Booth 115*), will exhibit newest instruments in the nuclear and radioactivity detection fields, including a decade scaler, proportional amplifier, special lead shield, thin window proportional counter, scintillation spectrometer, and Beta well assembly. The B-A flame photometer will be shown as well.

Bausch & Lomb Optical Company, Rochester, N. Y. (*Booth 14*), extends an invitation to all scientists to have a personal demonstration of the optical equipment on display. The following are the major instruments that will be shown: motion photomicrography accessories, binocular phase contrast microscopes, Abbe 3-L refractometer, UV reflecting microscope with grating monochromator, L camera with new Model R research microscope. Technical representatives will be in attendance to assist in the solution of your optical problems.

Bellco Glass Inc., Vineland, N. J. (*Booth 129*), will exhibit various new items, featuring the break-resistant lip Erlenmeyer flask, and the Morton stainless steel culture tube closure which is designed to replace both cotton plugs and aluminum closures. Samples will be available for distribution. The Bellco large orifice pipette will also be displayed. Various new items in tissue culture glassware will be shown.

Blakiston Division, McGraw-Hill Book Co., Inc. (*Booth 74*), will feature Mellors, *Analytical Pathology, Treatises in the Perspective of Biology, Chemistry and Physics* and Grollman, *Clinical Physiology, The Functional Pathology of Disease.* Other books on display will be Hubbard, *The Early Detection and Prevention of Disease;* White, Handler, Smith and Stetten, *Principles of Biochemistry;* Hawk, Oser and Summerson, *Practical Physiological Chemistry,* 13th Ed.; Drill, *Pharmacology in Medicine* and Hoerr and Osol, *Blakiston's New Gould Medical Dictionary,* 2nd Ed.

S. Blickman, Inc., Weehawken, N. J. (*Booths 86–87*), will display a micro-biological safety cabinet including a micro-biological filter for the safe handling of biological contaminants and radioactive materials. Information will be available also on a new idea in modular biological laboratory equipment, a basic enclosure to which technical components are added, allowing the technician to handle hazardous materials in an isolated area without danger of contamination.

C. A. Brinkmann & Co. Inc., Great Neck, N. Y. (*Booths 44–45*), will feature the following new equipment: automatic scanner for paperelectrophoresis with a direct reading percentage integrator; also ultra-thermostatic water baths with an accuracy of ±.01°C and a working range of −60°C to + 250°C and a temperature-controlled micro electrode for blood pH determinations. The new Zeiss spectrophotometer will be introduced, and latest models of Sartorius automatic balances will be on display.

Bronwill Scientific Division, Will Corporation, Rochester, N. Y. (*Booth 27*), will exhibit the Bronwill Warburg apparatus, a new design of the Bronwill constant temperature circulator with a circulating feature and a sensitivity of 0.01°C, and an adaptor for the Waring Blendor greatly increasing the versatility of the Blendor in mixing and homogenizing.

California Foundation for Biochemical Research, Los Angeles, Calif. (*Booth 90*), will distribute literature and *Aids for the Biochemist,* including a new one. A representative will be on hand to answer questions and discuss the work of the Foundation.

Chicago Surgical and Electrical Company, Chicago, Ill. (*Booth 113*), will exhibit two new pieces of equipment, a high speed continuous paper electrophoresis unit and a high speed paper chromatographic unit, both in operation and showing new principles of operation and results. Other equipment shown will be Imperial incubators, baths, #1 and #2 centrifuges and laboratory apparatus. In attendance will be Alexander I. Newman, President, and Donald V. Magnuson, Director of Research.

Coca-Cola Company, Atlanta, Ga. (*Lounge*). Ice-cold Coca-Cola will be served through the courtesy and cooperation of the Chicago Coca-Cola Bottling Company and The Coca-Cola Company.

Coleman Instruments, Inc., Maywood, Ill. (*Booth 135*).

Corning Glass Works, Corning, N. Y. (*Booth 84*) will exhibit Pyrex and Vycor brand laboratory glassware and custom-made apparatus, featuring Corning-made pipettes with double bevel tips, and the new "Accu-Red" accurate bore pipettes.

Coulter Electronics, Chicago, Ill. (*Booth 106*).

Custom Engineering and Development Co., St. Louis, Mo. (*Booth 100*), will display a com-

pletely new Model 300AR Nitralyzer nitrogen meter with a remote sampling head. Also, a precision, servo-controlled spirometer with high dynamics and a data corrector for linearizing any non-linear electronic output will be presented for the first time.

Difco Laboratories, Detroit, Mich. (*Booth 81*), will display newly developed standardized laboratory reagents. These will include antisera for enteropathogenic *E. coli*, streptococcal antisera, C protein antiserum and Bacto-Unidisks. Sensitivity disks, streptolysin O reagent, cardiolipin antigens, reagents for blood coagulation studies, liver and kidney function determinations together with media and reagents for all microbiological procedures including tissue culture and virus propagation will also be featured.

E. I. Dupont de Nemours & Company, Wilmington, Del. (*Booths 110–111*), will feature a model showing the general metabolic pathways of essential and non-essential amino acids in the synthesis of body protein. Representatives discuss recent evidence of the relation of the syndromes of Kwashiorkor to a lack of amino acids or high quality protein in the diet. The possibility of improving the quality of certain plant proteins by amino acid supplementation is also stressed.

E-C Apparatus Company, Swarthmore, Pa. (*Booth 143*), will exhibit the following new apparatus for analysis and fractionation of chemical and biological materials; countercurrent fractionator for quantative separations in two-phase solvent systems; electroconvection apparatus for preparation of pure proteins; electrophoresis apparatus for either starch block or paper strip, with provision for simultaneously experimenting at three different pH values and with water-cooled pressure plates; and a new compact fraction collector.

Eberbach Corporation, Ann Arbor, Mich. (*Booth 109*), will show rotating and reciprocating shaking machines designed for biological culture or general purpose laboratory shaking. The line of Eberbach stirrers, built to serve varied laboratory needs, will be on display. Micro slide filing cabinets and an agitating, immersion type pump for transfer or circulation of liquids will round out the exhibit.

Edin Company, Inc., Worcester, Mass. (*Booth 46*), will exhibit instrumentation systems for making direct graphic recordings of physiological phenomena. Featured will be amplifiers, multi-channel oscillographs and transducers that may be assembled in numerous combinations; the new Edin automatic, low frequency wave analyzer which features excellent stability, interchangeable band pass filters and the latest electronic circuits and components.

Electric Hotpack Company, Inc., Philadelphia, Pa. (*Booths 116–117*), will have a working display of controlled temperature equipment for the laboratory, including a demountable, portable constant temperature room; heavy duty water baths; new Hi-Lo temperature oven 0°C to 60°C; chromatography drying oven; controlled temperature and humidity oven; electric muffle furnace and visible water bath, ambient to 100°C range.

Encyclopaedia Britannica, Chicago, Ill. (*Booth 141*).

Falcon Plastic Products, Culver City, Calif. (*Booth 128*).

Fisher Scientific Company, Pittsburgh, Pa. (*Booths 58–59*). Principal products to be displayed are Spinco electrophoresis apparatus, Model R and Model CP; redesigned Van Slyke apparatus; Fisher-Gulf partitioner; Fisher Tissuematon; Beckman Model DK; Fisher Freeze-Dry apparatus; controlled atmosphere cabinet; Drummond centrifuge; Hematocrit centrifuge; chemicals.

J. Melvin Freed, Inc., Perkasie, Pa. (*Booth 55*), will exhibit laboratory flat glass materials, featuring the pre-cleaned microscope slides which afford uniform dispersion for blood smears, aqueous bacteriological smears, and absolute adhesion of tissue sections. Eliminating the usual cleaning preparations, the slides are packed in plastic lined containers which enable individual slides to be removed without fingering the others. Also displayed will be concavity slides and the Corning Brand Optical Cover Glass.

Gilson Medical Electronics, Madison, Wisc. (*Booth 114*), will exhibit its standard volumetric fractionator, transferator, GME-Lardy 20 inch diameter circular Warburg with 14 manometers and with variable amplitude and shaking rate, GME polygraph-electroencephalograph, and 20,000 volt electrophoresis apparatus. A new product of particular interest will be a compact 2 - channel electrocardiograph - electroencephalograph for operating room or laboratory use.

Graf-Apsco Company, Chicago, Ill. (*Booth 121*), will display new and guaranteed rebuilt microscopes. They are the originator of the trade-in policy of microscopes and also the largest and leading microscope repair house in America. If you have any old or obsolete microscopes to

trade, see "Graf-Apsco". Repairs also available on any make or model microscope.

Grass Instrument Company, Quincy, Mass. (*Booth 147*), will exhibit such instruments designed for electrophysiological research as the Model 5 polygraph for recording physiological variables. Both A.C. and D.C. preamplifiers, input probes, stimulators, oscilloscope camera with instrument table to house this equipment will be shown. The Grass line of strain gauge transducers will be displayed. Personnel will be on hand to discuss problems involving the application and use of these instruments.

Grune & Stratton, Inc., New York City (*Booth 77*) invites you to examine the following books: King's *Micro-Analysis in Medical Biochemistry,* 3rd Ed. Rev.; Talbott's *Blood and Bone Marrow Patterns;* Dreyfus' *Some Milestones in the History of Hematology; Proceedings of the Sixth International Congress of the International Society of Hematology;* Saphir's *Systemic Pathology;* Knights' *Ultramicro Methods for Clinical Laboratories;* Thannhauser's *Metabolism and Metabolic Disorders;* Hess' *The Functional Organization of the Diencephalon;* Scherf and Boyd's *Cardiovascular Disease,* 3rd Ed. Rev.; Redisch and Tangco's *Peripheral Circulation in Health and Disease;* Tocantins' *Progress in Hematology;* Bessis' *Cytology of the Blood and Bloodforming Organs;* Brecher's *Venous Return;* and Brooks' *Excitability of the Heart.* Frank Kurzer in attendance.

Harvard Apparatus Company, Dover, Mass. (*Booth X*). Apparatus for use in research and teaching of physiology and its allied sciences will be displayed.

Heinicke Instruments, Hollywood, Fla. (*Booth 138*), invites you to see in action three models of laboratory glassware washers designed for washing, rinsing, and distilled water rinsing nearly all types of glassware ranging from capillary pipettes to 5 gallon bottles. The capacity of the various models adapts to the smallest and largest laboratories. Displayed, too, is a cage-washer for washing, rinsing, and steam rinsing animal cages, feeding equipment, etc. Jane R. Heinicke and Kurt J. Heinicke will be in attendance.

Karl Heitz., Inc., New York City, (*Booth 21*) will show a varied display of new model optical equipment, including the following: Bleeker microscopes, refractometers and spectroscopes; Projectina viewer-projector-camera combination; Kern Swiss and Omag Swiss microscopes; Alpha and Diax IIb 35 mm cameras; Primos enlargers; Multiscope and Filmosto table viewers; and Lindia and Filmosto slide binders.

Paul B. Hoeber, Inc., New York, N. Y. (*Booth 126*), cordially invites you to visit and browse at the Hoeber-Harper booth. Distinguished new monographs and textbooks will be on hand. Of particular importance to many Federation members is the journal, *Clinical Chemistry.* This highly successful journal is now starting its third year. Copies can be seen and subscriptions entered at the booth.

Instrumentation Associates, New York City (*Booth 133*).

International Equipment Company, Boston, Mass. (*Booth 73*). You are cordially invited to visit this exhibit of laboratory centrifuges. International is featuring its new Model HT, a high speed table model with many new and exclusive features. Factory representatives will be present to discuss all centrifuging problems with you.

Jarrell-Ash Company, Newtonville, Mass. (*Booth 25*), is exhibiting the JAco blood arithmometer for electronic determination of red and white cell counts; the JAco four-channel flame spectrometer for simultaneous K, Na, Ca, and Mg determinations; the JAco Ebert scanning spectrometer for scanning the visible and u.v. spectrum; and the Patwin flame photometer for Na and K determinations.

W. H. Kessel & Co., Chicago, Ill. (*Booth 134*), will display instruments representing the latest developments in the field of microscopy, photomicrography and time lapse micro motion pictures, products of American Optical, Leitz, Zeiss and others. Also shown will be Sartorius balances, polarimeters, refractometers, spectrophotometers and other laboratory instruments.

Kewaunee Manufacturing Company, Adrian, Mich. (*Booth 137*). Bacterial and viral safety hoods reflecting the latest design and construction criteria will be shown and demonstrated. Two safety hoods will be displayed. One is a standard unit and the other is specifically designed for a specialized technique.

Kimble Glass Company, Toledo, Ohio (*Booth 47*), will exhibit representative samples of its line of precision laboratory glassware. These samples will include flasks, cylinders, weighing bottles, centrifuge tubes, thermometers and pipettes. The new color-coded culture tubes and serological pipettes with easy-to-read printed inscriptions will also be featured. Literature offered will in-

clude the general catalog, various stuffers and *The Care and Handling of Glass Volumetric Apparatus.*

Kontes Glass Company, Vineland, N. J. (*Booth 105*). Culture Flasks, Tissue Grinders, Culture Tubes and other glassware of interest to the tissue culture scientist will be displayed. Volumetric flasks, serological, transfer, long tip and large orifice pipettes will also be on exhibit. Bantam-ware, a complete small organic chemistry laboratory for organic preparations of 5 to 50 ml. capacity, will be demonstrated.

Laboratory Glass & Instrument Corp., New York City (*Booth 60*).

Arthur S LaPine & Company, Chicago, Ill. (*Booth 118*), will display their Lanco bath cooler, plug-in control and stainless steel beakers, Lourdes and Virtis homogenizers, histological freeze drying equipment, evaporation equipment, centrifuge, glassware washer, combination hot plate-magnetic stirrer, new Tempunit bath control and laboratory furniture.

Lea & Febiger, Philadelphia, Pa. (*Booth 61*), will display their interesting new books and new editions for your leisurely examination. Ask for Soffer's *Diseases of the Endocrine Glands,* Levinson and MacFate's *Clinical Laboratory Diagnosis,* Wintrobe's *Clinical Hematology,* Bell's *Textbook of Pathology,* Quick's *Hemorrhagic Diseases,* and Starling's *Principles of Human Physiology.*

E. Leitz, Inc., New York City (*Booths 71–72*), will exhibit the following: new color phase equipment; fluorescence accessories; microtomes; UAM-Universal research microscope; medical and laboratory microscopes; 500 watt Prado micro projector and accessories; accessories for polarized light; Ultropak equipment; photomicrographic equipment including accessories for macrophotography; micro-manipulator; additional new items for use in the medical and research laboratories.

Lilly Research Laboratories, Indianapolis, Ind. (*Booth 142*). The broad scope of the fermentation interests of the Lilly Research Laboratories is illustrated by means of pictures and displays. Each project represented is an accomplishment or interest of the laboratories, in isolation and characterization of materials in the field of antibiotics, antitumor substances, antiviral substances, nutritional factors, pharmacologically active agents, and agricultural products.

J. B. Lippincott Company, Philadelphia, Pa. (*Booth 124*), presents, for your approval, a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

Little, Brown & Company, Boston, Mass. (*Booth 93*). The Medical Book Department will feature more than twenty titles published in the Ciba Foundation Symposia, including *Paper Electrophoresis; Bone Structure and Metabolism; Internal Secretions of the Pancreas; Ageing in Transient Tissues.* Also highlighted will be Annino, *Clinical Chemistry, Principles and Procedures;* *Medical Research: A Midcentury Survey,* Winton and Bayliss, *Human Physiology.*

Lourdes Instrument Corp., New York City (*Booth 91*), invites you to review the Model LR Super-Speed Refrigerated Centrifuge, permitting faster temperature control and maintaining any of four interchangeable rotors at 0°C and below. The VRA large volume rotor, with 1500 cc capacity, may be spun at speeds to 11,000 RPM with forces to 20,000 x G. Non-refrigerated superspeed centrifuges and the Multi-Mixer for all purpose homogenizing, chopping and disintegrating will also be shown.

Macmillan Company, New York City (*Booth 102*), invites you to visit their exhibit where many outstanding titles in scientific and medical literature will be on display. Recent publications include Russ, *Smoking and Its Effects,* and West, *Textbook of Biophysical Chemistry,* 2nd Ed.

Josiah Macy, Jr. Foundation, New York City (*Booth 144*), will have on display the *Transactions* of the Conference Program, nearly verbatim reports of multidiscipline conferences giving the reader the flavor of discussions. Among titles on display will be *Cold Injury; Shock and Circulatory Homeostasis; Gestation, Physiology of Prematurity; Nerve Impulse;* and *Neuropharmacology.* Earlier volumes including reprinted issues of *First* and *Second Conferences on Metabolic Interrelations* will also be available.

Medical, Dental, Scientific Photographic Equipment Co., Levittown, N. Y. (*Booth 62*), will exhibit a complete line of photographic equipment for close-up work for either regular or stereo pictures, introduce the new fixed focus lens for ultra close pictures of a ½ inch area, and present inexpensive close-up set-ups using the famous patented Close-up Ring.

Medical-Electronics Development Company, Great Neck, N. Y. (*Booth 56*), will demon-

strate instruments for measurement and objective recording of the blood pressure in human beings and laboratory animals without arterial puncture. Included will be the "Visoton", an oscilloscopic device; other "Infraton" pickups and apparatus; a new line of air valves for laboratory use.

Meinecke & Company, Inc., New York City (*Booth 82*), will demonstrate Haemo-Sol, the chemical preparation specifically designed for the cleaning of scientific apparatus such as laboratory glassware, syringes. Haemo-Sol is entirely free rinsing, prevents any etched condition on glassware, is laboratory approved for tissue culture work, and is ideal for use in connection with a flame photometer.

Microbiological Associates, Inc., Bethesda, Md. (*Booth 146*), will display living cells in vitro and a complete line of tissue culture materials including media for growth and maintenance of cells. Specially designed tissue culture equipment, detergents and glassware can be seen. Representatives will discuss individual tissue culture and virus propatation problems.

C. V. Mosby Company, St. Louis, Mo. (*Booth 68*). As you tour the exhibits, a cordial invitation is extended to you to visit their booth where they have on display for leisurely examination a diversified selection of science books. Whatever your book requirements for teaching or for reference, discussion thereof is invited and welcomed.

National Aniline Division, Allied Chemical & Dye Corp., New York City (*Booth 92*). The Pharmaceutical Sales Department will present a new display which features color photomicrographs illustrating applications of some of the widely used biological stains sold by the company. The display also will call attention to the other types of products offered which include pharmaceutical chemicals, pH indicators, oxidation-reduction indicators, diazo salts, and staining solutions.

National Instrument Laboratories, Inc., Riverdale, Md. (*Booth 112*), will introduce instruments developed in collaboration with leading biochemical and medical research centers: the N.I.L.-Merck Sonic Gas Analyzer for O_2 uptake and R.Q. in human beings and experimental animals, the Chromagraph for recording and automatic integrating for electrophoresis and chromatographic paper strips, a no-miss Drop-Counter developed at the National Institutes of Health, and apparatus for continuous conductivity measurement of chromatographic columns.

New Brunswick Scientific Company, New Brunswick, N. J. (*Booth 94*), will introduce an incubator-shaker which provides under constant temperature control, larger platform capacity and more vigorous agitation than attainable with water bath shakers. Also on display for the first time will be the improved Model V rotary action shaker. A fermentor stand variable drive assembly and several models of fermentors will be exhibited. The gyrotary shaker and both rotary and reciprocating action water bath shakers will be shown.

Nuclear-Chicago Corporation, Chicago, Ill. (*Booth 33*), will exhibit a new line of radiation measuring instruments for the biochemist. Included will be an automatic sample changer system, a new "Actigraph" system for radiochromatograms strip analysis, scalers, scintillation detectors and retemeters, and an automatic remote pipettor. Featured also will be the new Model 6000 DYNAC electrometer for absolute counting of soft beta gas samples, catalogs and radiochemical carbon-14 price lists.

Nuclear Corporation of America, St. Louis, Mo. (*Booth 145*). Complete facilities for experimental work with Carbon-14 and other radioactive materials will be exhibited, including both counting instruments and labeled compounds. NRD Instruments include gas flow counters, scintillation counters, coincidence and refrigerated counters, radiochromatographic counters, and associated circuits. Isotope specialties list of approximately 150 C^{14} labeled research compounds is also offered.

Nucleonic Company of America, Brooklyn, N. Y. (*Booth 19*) will exhibit the NCA high-gamma-sensitivity well counters featuring previously unobtainable well sizes with sample volumes ranging from 7 cc to over 7 liters, geiger tubes for varied applications, scintillation counter with collimator and shielded sample changer, scale-of-1000 scaler, analytical ratemeter, pulse amplifier, and complete film badge service, all shown for the first time.

Opplem Company, Inc., East Rutherford, N. J. (*Booth 148*), will demonstrate Opplem Time-Lapse apparatus and special temperature-control cabinets for microscopes for tissue culture work. Several new microscope stands by Galileo, Inc., built-in screens for mass viewing, and special microscope heads for visual observation and instantaneous photography will be operated.

Organon, Inc., Orange, N. J. (*Booth 50*). Corticotropin-zinc hydroxide (Cortrophin-Zinc) has a more prolonged clinical action than corticotropin gel. This poses special problems in bioassay. Results of studies bearing on duration of action will be presented.

Oxford University Press, Inc., New York City (*Booth 83*), will exhibit a wide range of medical and scientific titles of both British and American origin. Among those featured will be: Homer Smith's *Principles of Renal Physiology* and *The Kidney;* Hill; *Principles of Medical Statistics;* and Moore, *Principles of Zoology.*

Packard Instrument Company, LaGrange, Ill. (*Booth 89*), will demonstrate, for the first time, the automatic Tri-Carb liquid scintillation spectrometer in actual operation counting up to 100 samples of tritium, carbon-14 or other beta-emitting isotopes at each loading. Windowless and Flo-Window counters for counting solid samples of alpha and beta emitters, Packard automatic fraction collectors and accessory equipment for column chromatography will be shown.

Patwin Instruments Division, Patent Button Company, Waterbury, Conn. (*Booth 139*), will display its new F-C flame photometer which features a unique horizontal sealed burner. Manual and recording electro-polarizers used for determination of chlorides and metals, such as lead, in body fluids also will be shown.

Pentex Incorporated, Kankakee, Ill. (*Booth 88*), will feature purified reagents and intermediate specialty products needed for full scale biochemical research. Included are control reagents, enzymes, purified proteins, and blood proteins and derivatives. Pilot plant, bulk chemical manufacture and consultation facilities are readily available.

Perkin-Elmer Corporation, Chicago, Ill. (*Booth 8*).

Phipps and Bird, Inc., Richmond, Va. (*Booth 36*).

Polarad Electronics Corporation, Long Island City, N. Y. (*Booth 13*). Electronics in the laboratory provides accuracy, convenience, and speed. The automatic recording titrator does double duty by measuring reaction kinetics as well as ionization constants. Frictionless electrostatic torque extends the rotating cylinder viscometer principle to virtually initial viscosity. The automatic falling drop densitometer, the microwave electron resonance spectrometer, the Stark modulator, and the automatic rotating tourniquet complete an all-new instrument line.

Precision Scientific Company, Chicago, Ill. (*Booths 40–41*) will feature the Ionograph, superior apparatus for electrophoresis on paper, starch, etc.; precision Warburg manometricon; precision Dubnoff metabolic shaking incubator; representative models of the re-designed Thelco line of ovens and incubators; and—being shown for the first time—a portable oven with a range to 125°C.

Radio Corporation of America, Camden, N. J. (*Booths 34–35*), will show the new EMU-3 electron microscope in operation. There will also be displayed a selection of micrographs of specimens of interest to biologists. RCA engineers will be in attendance to answer inquiries.

Ralston Purina Company, St. Louis, Mo. (*Booth 20*), will exhibit various types of chows Purina makes for all kinds of laboratory animals. In addition, technical personnel will be in the booth to answer questions about the feeding and management of laboratory animals. Also, you are invited to pick up a copy of *Purina's New Laboratory Animal Manual*, just off the press.

Raytheon Manufacturing Company, Waltham, Mass. (*Booth 48*), will feature the Sonic Oscillator, which has become an accepted tool for biological and bacteriological research. Two models are shown—the 50 watt (9 kc) model, having a maximum capacity of 66 cc; and the 250 watt (10 kc) unit, which has a maximum capacity of 165 cc. Sonic oscillators are widely used for disintegration of bacteria, dispersion, diffusion, emulsification and many other laboratory applications.

Research Specialties Co., Berkeley, Calif. (*Booth 107*), will demonstrate the following products manufactured in their own shops and laboratories: paper chromatography equipment and chromatographic columns; paper electrophoresis equipment and accessories; water bath shaker; microtome knife sharpener; micropipettes; specialized laboratory glassware; other instruments and apparatus for laboratory use; C^{14} and H^3 labeled compounds.

Sanborn Company, Cambridge, Mass. (*Booths 69–70*), will demonstrate their continually-expanding line of direct-writing, photographic, and tape recording systems, of transducers for pickup of various physiologic events, of specially-designed Monitoring Oscilloscopes and other equipment useful in cardiovascular (and other) diagnosis, teaching, and research. You are invited to examine this equipment and to discuss with Sanborn engineers its applicability to their investigative problems.

Sandoz Pharmaceuticals, Hanover, N. J. (*Booths 103–104*). *Chemistry and Pharmacological Data on Synthetic Oxytocin Sandoz and Analogues,*

chemical and pharmacological data concerning synthetic oxytocin (Syntocinon) and four of its structural analogues are presented.

E. H. Sargent & Co., Chicago, Ill. (*Booth 57*), will exhibit two instruments of their own design and manufacture. These include the Model XXI recording polarograph and the recently announced Sargent potentiometric multiple range laboratory recorder. In addition, they will show the Beckman DK-2 recording spectrophotometer. Technical men will be in attendance to give demonstrations and answer questions.

W. B. Saunders Company, Philadelphia, Pa. (*Booths 98–99*), cordially invites you to visit their exhibit and examine their complete line of books in your field of interest.

Schwarz Laboratories, Inc., Mount Vernon, N. Y. (*Booth 43*). Members of their staff will be on hand to answer questions about the more than 190 products now made by the company. The exhibit will include nucleic acid compounds, purines and pyrimidines, adenosine phosphates, nucleosides and nucleotides, sugars and sugar phosphates, glutathione compounds, sulfhydryl reagents, deoxynucleosides, optically standardized amino acids and kit, C^{14}, S^{35}, P^{32}, H^3 and N^{15} labeled biochemicals, and clinical preparations.

Scientific Products, Division of American Hospital Supply Corporation, Evanston, Ill. (*Booth 42*), will display equipment for virus and tissue culture, electrophoresis, micro analysis and bacteriology. The new I-R Moisture Matic balance for semi-automatic moisture determinations will be demonstrated. Additions to the expanding line of "diSPo" products, single-use items to save time in the laboratory, will be featured.

Smith, Kline & French Laboratories, Philadelphia, Pa. (*Booths 4A–4–5*), will feature machine retrieval, an electronic method for searching masses of scientific data. The exhibit demonstrates the utilization of electronic data processing machinery as a tool in biological and pharmacological research. Drawings, photographs, and explanatory text describing the system of machine-aided research in use at their laboratories are supplemented by frequent live demonstrations showing the system in actual operation.

Ivan Sorvall, Inc., Norwalk, Conn. (*Booths 64–65*), will display new superspeed angle and refrigerated centrifuges and redesigned rotors, Porter-Blum microtomes, automatic pipettes and high-speed Omni-Mixers. Various LKB instruments exhibited will be electrophoretic and chromatographical columns, polarolyzer, Sjostrand ultra-microtome, and "RadiRac" fraction collector.

Spinco Division, Beckman Instruments, Inc., Palo Alto, Calif. (*Booths 122–123*), will feature an operating Model E analytical ultracentrifuge with latest accessory equipment. Also on display will be the new Spinco infrared carbon dioxide analyzer and medical radioisotope instruments. Representatives will be on hand to discuss medical and biological applications of free electrophoresis and Spinco research instruments.

Standard Polarimeter Company, New York City (*Booth 51*). The Standard Model D Keston photoelectric polarimetric unit, which attaches to Beckman DU spectrophotometer without limiting its use as a spectrophotometer, has a sensitivity of 0.0015°. Measurements of angular rotations are made in a few seconds, permitting the instrument's use in enzyme kinetic studies. Rotations are linear with optical density scale readings.

C. H. Stoelting Company, Chicago, Ill. (*Booth 119*). In addition to several instruments for student use, a number of research specialties will be exhibited such as the Cailloux micromanipulator, Skinner box, strip chart recorder, research microscope, and of special interest will be a low cost direct writing multi-channel recorder, in which electrical, pneumatic and mechanical recorder elements can be intermixed.

Technicon Company, Chauncey, N. Y. (*Booths 78–79–80*), will show the new Autoanalyzer for automatic, routine blood chemistry analyses. Automatic determination of blood urea nitrogen, glucose and calcium is now possible, and methods for determination of other constituents are under development, permitting continuous or intermittent monitoring for *in vivo* experiments. The Technicon proportioning pump and recording colorimeter will also be featured.

Arthur H. Thomas Company, Philadelphia, Pa. (*Booth 130*), will exhibit a new chromatography cabinet for 8 paper sheets 22½″ x 18¼″; new glass jar for chromatography apparatus for narrow paper strips; electrically heated micro Kjeldahl digestion apparatus with individual controls for 6 flasks; redesigned and improved electric paraffin oven; a micro cold stage.

Charles C Thomas. Publisher, Springfield, Ill. (*Booth 3*).

Tracerlab Inc., Boston, Mass (*Booths 52–53*), will exhibit their new Model CE-14 low back-

ground counter for beta activity, automatic sample changing and counting equipment, liquid scintillation phosphors, and Model SC-57 low background counter. In addition, they will show personnel protection equipment, radiation research equipment, and will distribute the second edition of their comprehensive catalogue on *Radioactive Chemicals and Technical Services.*

Tri-R Instruments, Long Island City, N. Y. (*Booth 140*), developers of electronic and mechanical instruments for scientific research, will show a selection of their instruments including the automatic egg punch, magnetic stirrer, fraction collector and feature their thermistor temperature indicators, controllers and recorders Engineering personnel will be in attendance and will be glad to discuss your laboratory problems.

D. Van Nostrand Company, Inc., Princeton, N. J. (*Booth 6*), will display a selection of new and standard reference works and textbooks, including the following titles: *Progress in Neurobiology,* edited by J. A. Kappers; *Vitamin A,* by T. Moore; *Dictionary of Microbiology,* by M. B. Jacobs, K. N. Gerstein and W. G. Walter; and, *Submicroscopic Morphology of Protoplasm,* by A. Frey-Wyssling.

Volk Radio-Chemical Company, Chicago, Ill. (*Booth 131*).

Warner - Chilcott Laboratories, Morris Plains, N. J. (*Booth 125*).

Waters Corporation, Rochester, Minn. (*Booths 75–76*), will demonstrate the new self-developing photokymograph recorder in combination with matching "modular control" system for simultaneous recording of multiple cardio-pulmonary phenomena. No costly amplifiers are needed. Also featured will be a new, stable nitrogen gas analyzer, oximeter, cardiotachometer, and a new thermistor offering extra sensitive, fast probes.

John Wiley & Sons, Inc., New York City (*Booth 32*), publishers in science and technology for one hundred and fifty years, will display the latest basic and advanced books in all areas of biological sciences. Of special interest are the *Biological Research Series, Biochemical Preparations* and the well-known *Methuen Monographs.*

Will Corporation, Rochester, N. Y. (*Booth 26*). On exhibit will be disposable sterilized plastic Petri dishes, pipette and microscope slide washer, new aluminum pipette boxes, special centrifuge tube rack for 50 ml centrifuge tubes, inexpensive hand micromanipulator, polyethylene stoppers for jars and bottles, Gyratherm magnetic stirring hot plate with plastic stirring bar retriever and a micro syringe burette for clinical micro chemical use.

Williams & Wilkins Company, Baltimore, Md. (*Booth 39*). Among the new publications displayed, your attention is invited particularly to the following titles: *Bergley's Manual of Determinative Bacteriology,* 7th Ed , vol. 1 taxonomic material, vol. 2 bibliographic material; Topley and Wilson's *Principles of Bacteriology and Immunity,* 4th Ed., 2 vols.; *Pharmacologic Principles of Medical Practice* by Krantz and Carr (new edition in preparation); *Biochemistry and Human Metabolism,* 2nd Ed., by Walker, Boyd and Asimov.

Worthington Biochemical Corporation, Freehold, N. J. (*Booth 49*), expects to display its enzymatic reagents, make available the new edition of the *Biochemical Manual,* and other printed matter. The booth will be staffed by technical personnel at all times.

Year Book Publishers, Inc., Chicago, Ill. (*Booth 54*), will exhibit for your leisurely inspection such volumes as *Methods in Medical Research,* Vol. 7; *Annual Year Books,* 1956–57 Series; Youmans' *New Fundamentals of Human Physiology;* Fields and Seed's *Clinical Use of Radioisotopes,* and others of timely interest.

Yellow Springs Instrument Co., Inc., Yellow Springs, Ohio (*Booth 95*), will demonstrate a new wide-range high-accuracy laboratory temperature controller based on the thermistor as sensing element. In addition, a complete line of thermistor thermometers and interchangeable thermistor probes will be shown and operated. Complete information and consultation on the YSI cardiotachometer and Dermohm-meter will also be available.

Member and Institutional Exhibits

Amino acid needs of malnourished infants. ANTHONY A. ALBANESE, REGINALD A. HIGGONS,* GERTRUDE M. HYDE* AND LOUISE ORTO.* *Nutritional Research Lab., St. Luke's Hosp., New York City (Booth J).* The essential amino acid needs of artificially fed healthy infants are usually met by evaporated milk formulae containing approximately 2 grams of protein per pound per day. However, under conditions of nutritional stress these diets may fail to provide sufficient amino

acids for the rapid resynthesis of essential body tissues. Our presentation demonstrates that supplementation of diets of underweight infants with 25–30 mg. of L-lysine per pound per day offers a promising approach in overcoming the effects of possible dietary protein deficiencies of self-limited food intake.

Pharmacological studies in development of new insect repellents and pesticidal agents. ANTHONY M. AMBROSE, *Army Environmental Health Lab., Army Chemical Ctr., Md.* (*Booth W*). The exhibit illustrates in chronological order the close cooperation between entomological and toxicological research and a few of the procedures employed in development of repellents, anticercarials, clothing and material impregnants, insecticides, fungicides, rodenticides, etc., in the control and prevention of insect-borne diseases, and in the preservation of foods and feeds for military personnel.

American Association for the Advancement of Science, New York City. (*Booth U*).

Cardiac pace maker operated by electric power from oxidation of unsaturated fats. REINHARD H. BEUTNER. *Medical Research Lab., Des Moines Still College, Des Moines, Iowa* (*Booth O*). Deficiency of unsaturated fats has been shown to be a factor in coronary thrombosis. Nonthrombotic heart disease may likewise be caused by this deficiency. The pace maker needs the electric energy produced by oxidation of unsaturated fats. Mode of production of electric energy by fat oxidation will be explained.

Bioscientific Information Exchange, Washington, D. C. (*Booth R*).

Animal Care Panel. N. R. BREWER, *Supt. of Animal Qtrs., Univ. of Chicago.* (*Booth C*). The exhibit will depict work of Panel which was organized by individuals working with laboratory animals. The activities of gathering, dispensing and inspiring development of information about the care of laboratory animals and the management of laboratory animal quarters are illustrated.

Water diffusion through human skin and anatomy of diffusion barrier. KONRAD J. K. BUETTNER AND GEORGE ODLAND.* *Univ. of Washington, Seattle.* (*Booth E*). The display will include instruments for measurement of gain or loss of water vapor through human skin; demonstration of Szakall's "stripping" method for separation of *stratum corneum conjunctum* or barrier layer; and electronmicrographs of the barrier layer.

Bioclimatology. L. D. CARLSON. *Univ. of Washington, Seattle.* (*Booth D*). This exhibit will supplement the symposium presented jointly by the American Physiological Society and the Committee on Bioclimatology of the American Meteorological Society (program page 487). Three panels illustrating physical, aerosol and statistical bioclimatology will be displayed.

Renal hemodynamics and electrolyte and PAH transport studies under conditions of loading with various sodium salts. SAMUEL A. CORSON AND ELIZABETH O'LEARY CORSON.* *Univ. of Arkansas School of Medicine, Little Rock* (*Booth M*). Graphic data will be presented on the effects of constant intravenous infusions of hypertonic solutions of sodium chloride, acetate, succunate and fumarate on renal hemodynamics, renal oxygen consumption, electrolyte excretion and tubular reabsorption, and PAH transport.

Intracerebral electrodes: use in physiology, pharmacology and psychology. JOSÉ M. R. DELGADO. *Yale Univ. School of Medicine, New Haven, Conn.* (*Booth P*). The exhibit will show examples of somatic, autonomic and behavioral responses evoked by cerebral stimulation; site of action of cerebral stimulants and depressants; transistor stimulator for wireless excitation of the brain; study of social behavior by time-lapse photography; and epileptic mechanism in human beings.

A comparison of oxytocic agents. WILLIAM J. DIECKMANN AND NICHOLAS W. FUGO. *Chicago Lying-in Hosp. and Univ. of Chicago* (*Booth B*). The exhibit will consist of a display of a comparison of the oxytocic properties of ergonovine malate, pitocin and a synthetic oxytocic posterior pituitary gland hormone. The effects of these agents on blood loss in the placental stage of labor, uterine response and general systemic effects will be compared.

The history of goiter in Spain and among Jews. ISIDOR GREENWALD. *New York Univ. College of Medicine, New York City* (*Booth Q*). In most of Spain, goiter has been known only since 1800. It became prevalent but is now less so in many places. The sole reference to its earlier presence in central Spain is in Hebrew, which is also the only known reference to its presence among Jews in two millenia.

Insensible weight loss. GEORGE M. GUEST AND MARY D. PETTIT*. *Children's Hosp. Research Fndn., Cinncinnati* (*Booth K*). Photographs of apparatus developed for continuously recording changes of body weight of human subjects and

laboratory animals for estimation of insensible weight loss (IWL); graphic records of tests and tables of data on effects of hyperventilation on IWL, (e.g., with salicylism, diabetic acidosis), thyroid stimulant and depressant drugs; and correlations of IWL and BMR will be shown.

Acute respiratory illness of Adenovirus (RI-APC) etiology in military populations. M. R. HILLEMAN, *Walter Reed Institute of Research, Washington, D. C.* (*Booth L*). Acute respiratory illness of Adenovirus (RI-APC) etiology among newly recruited soldiers is a major medical problem to the Armed Forces. The display describes the etiology, diagnostic methodology and epidemiology of such illness and presents the data concerning a new and highly effective vaccine against these infections which was developed and evaluated at the Walter Reed Institute of Research.

Utilization of recorded knowledge. WILLIAMINA A. HIMWICH, *Galesburg State Research Hosp.* A demonstration by participants in the Symposium on Utilization of Recorded Knowledge (see page 480) will be conducted on Thursday afternoon, April 18 in and near Booth 4. Techniques of coding, informational exchange, translating, and mechanized search will be shown.

Refrigeration system for microscopy. BASILE J. LUYET AND GABRIEL L. RAPATZ.* *American Fndn. for Biological Research, Madison* (*Booth I*). Air, forced through a drying tower and a cooling coil placed in liquid nitrogen or alcohol-CO_2 bath, refrigerates a stage of special design with shallow depression containing glycerol. Specimens, sealed between cover-glasses, are observed in glycerol. A pneumatic control, equipped with thermostat, automatically regulates the air flow.

Muscular Dystrophy Associations of America, Inc., New York City. (*Booth V*). On the general topic of manifestations of muscular dystrophy, the display will include map overlays showing the effect on muscle as the disease progresses and stop-action pictures indicating the difficulty a patient has in rising from a supine position. Consultants for the display: Ade T. Milhorat, characteristics; John T. Ellis, histopathology.

National Science Foundation, Washington, D. C. (*Booth A*). The Foundation, an independent agency of the U. S. Government, will display material descriptive of its programs with particular emphasis on those of the Biological and Medical Sciences Division.

Walter Reed Army Institute of Research, Washington, D. C. (*Booth N*). The exhibit depicts the following areas of utilization and opportunity in the Allied Science Branch of the Medical Service Corps: that its members are regular and reserve Army officers trained in scientific and professional fields allied to medicine; that working in their own specialties they possess a combination of skills vital to the modern concept of medicine; that the expert services which they provide are indispensable as a supportive element of the Army's medical team. Consultants for the display: Irving Gray and J. H. Akeroyd.

Pathology of radiation injury. CARL F. TESSMER* AND FRANK L. JENNINGS. *Armed Forces Institute of Pathology, Washington, D. C.* (*Booth S*). Significant changes secondary to radiation exposure are illustrated. Included are effects seen secondary to atomic bombs and fall-out as well as conventional radiation sources. Radioisotope effects include I^{131}, P^{32}, and Au^{198}. The implantation of radiation sources within tissue to develop characteristic experimental lesions is illustrated in the lung.

A mechanical scanning stage for the densitometer. F. J. WIERCINSKI, A. W. WASE* AND E. G. FLAMM.* *Hahnemann Med. College, Philadelphia* (*Booth H*). A device to estimate the quantitative distribution of radioactive substance in tissue at the cellular level was constructed. It is designed to hold a 3¼ x 4 inch autoradiogram slide. By means of a rack and pinion the stage can be moved in the horizontal and vertical axis for a distance of eight centimeters. A sample of I^{131} distribution in thymus tissue and Ca^{45} in bone are demonstrated.

Lyman R. Bradley, Association Conventions Exhibits, New York City. (*Booth F*). Book Display.

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Roman figures refer to serial number of abstract, **Federation Proceedings**, Part I; **bold figures** refer to serial number of paper in program, **Federation Proceedings**, Part II. S refers to symposia and special sessions; JS refers to Joint Session; MP refers to Motion Pictures.

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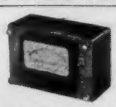

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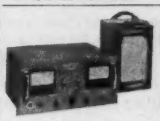

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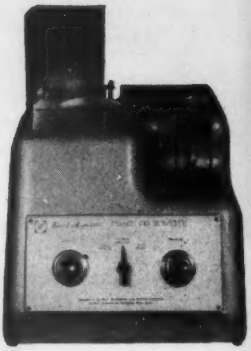

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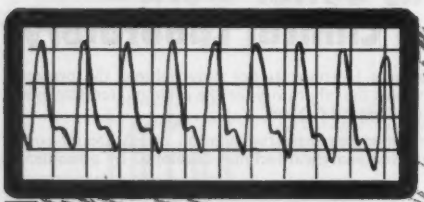

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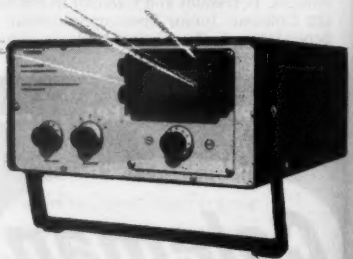

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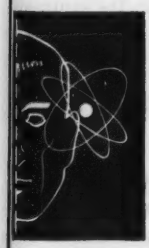

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BOOKS RECEIVED

There follows a list of titles received recently as well as a number received prior to the turn of the year for which space was not available for listing earlier.

Ageing in Transient Tissues, Vol. 2 ● G. E. W. Wolstenholme and Elaine C. P. Millar, *Editors for the Ciba Foundation*. Boston: Little, Brown and Co., 1956. 263 pages. $6.75

Anales del Instituto de Investigaciones Veterinarias, Vol. 7 ● Madrid: An. Inst. Invest. Veterinarias, 1956. 258 pages.

Annual Review of Medicine, Vol. 7 ● David A Rytand, *Editor*. Stanford, Calif.: Annual Reviews, Inc., 1956. 611 pages. $7.00

Beyond Laughter ● Martin Grotjahn. New York: McGraw-Hill Book Co., Inc., 1957. 285 pages $6.00

Biology of the Laboratory Mouse ● George D. Snell, *Editor*. New York: Dover Publications, Inc., 1956. 497 pages. $6.00

Bone Structure and Metabolism ● G. E. W. Wolstenholme and Cecilia M. O'Connor, *Editors for the Ciba Foundation*. Boston: Little, Brown and Co., 1956. 299 pages. $8.00

Cardiac Pressures and Pulses ● Aldo A. Luisada and Chi Kong Liu. New York: Grune & Stratton, Inc., 1956. 116 pages. $6.00

Cellular Mechanisms in Differentiation and Growth ● Dorothea Rudnick, *Editor*. Princeton: Princeton University Press, 1956. 236 pages. $7.50

Electrodiagnosis and Electromyography ● Sidney Licht, *Editor*. New Haven: Elizabeth Licht, 1956. 272 pages. $10.00

Environmental Physiology of Animals ● William S. Hoar. New York· Scholar's Library, 1956. 91 pages. $2.25

Histamine ● G. E. W. Wolstenholme and Cecilia M. O'Connor, *Editors for the Ciba Foundation*. Boston: Little, Brown and Co., 1956. 472 pages. $9.00

Human Generation ● Arthur William Meyer. Stanford: Stanford University Press, 1956. 143 pages. $3.50

Hypothalamus und Thalamus ● W. R. Hess. Stuttgart: Georg Thieme Verlag, 1956. 70 pages. $8.60 (German and English text)

Internal Secretions of the Pancreas ● G. E. W. Wolstenholme and Cecilia M. O'Connor, *Editors for the Ciba Foundation*. Boston: Little, Brown and Co., 1956. 292 pages. $7.00

Klinische Physiologie und Pathologie ● Ferdinand Hoff Stuttgart: Georg Thieme Verlag, 1956. 1120 pages. $18.95

Lymphatics, Lymph, and Lymphoid Tissue ● Joseph Mendel Yoffey and Frederick Colin Courtice. Cambridge: Harvard University Press, 1956. 510 pages. $10.00

Medical Aspects of Traffic Accidents ● Harold Elliott, *Editor*. Montreal: Sun Life Assurance Co. of Canada. 519 pages. $7.00

Modern Views on the Secretion of Urine ● F. R. Winton, *Editor*. Boston: Little, Brown and Co., 1956. 292 pages. $8.50

New Gould Medical Dictionary, Second Edition ● Normand L. Hoerr and Arthur Osol, *Editors*. New York: Blakiston, 1956. 1463 pages. $11.50

Paper Electrophoresis ● G. E. W. Wolstenholme and Elaine C. P. Millar, *Editors for the Ciba Foundation*. Boston: Little, Brown and Co., 1956. 224 pages. $6.75

Peaceful Uses of Atomic Energy, Vols. 10 and 11 ● New York: United Nations, 1956. $8.00 each

Physiology of the Ocular and Cerebrospinal Fluids ● Hugh Davson. Boston: Little, Brown and Co., 1956. 388 pages. $14.00

Physiological Studies on Infantrymen in Combat ● Nello Pace *et al*. Berkeley: University of California Press. 47 pages. $1.25

Principles of Zoology ● John A. Moore. New York: Oxford University Press, 1957. 667 pages. $7.50

The Rabbit in Experimental Physiology ● Harold M. Kaplan. New York: Scholar's Library, 1956. 69 pages. $2.50

Symposium on Vitamin Metabolism ● G. M. Brown *et al*. New York: National Vitamin Foundation, Inc. 118 pages. $2.50

Synthetic Ion-Exchangers ● G. H. Osborn. New York: The Macmillan Co., 1956. 194 pages. $6.00

Venous Return ● Gerhard A. Brecher. New York: Grune & Stratton, Inc., 1956. 148 pages. $6.75

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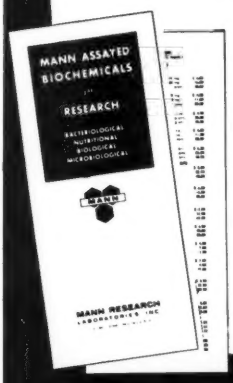

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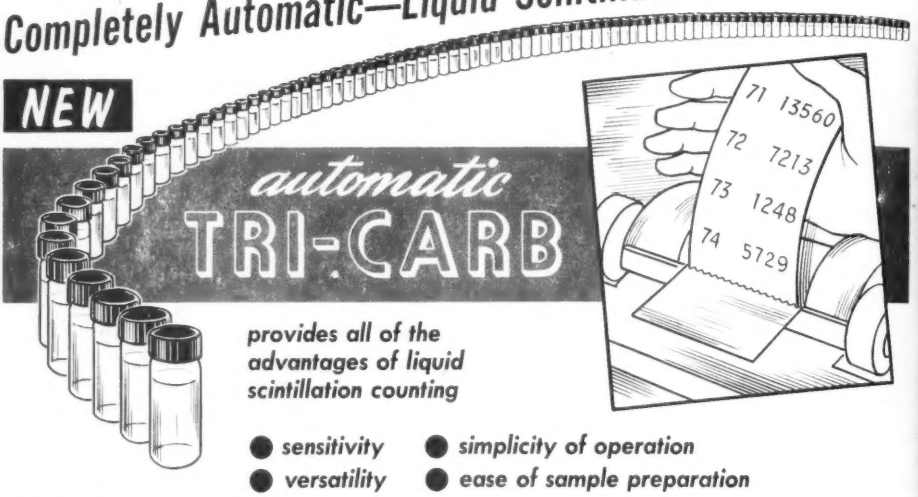

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